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Shadows and Straws

A COMPETITION, to some architects, is like the smell of smoke to a charger. To others, especially the young, it looms a shining magic gate, beyond which lies the flowery field of established practice. With age, no matter what the degree of prosperity and ofttimes in prosperity, no matter what the age, the competition has no power to thrill. Age and prosperity stale many things. Thus there are many minds on the subject of how competitions should or should not be regulated. Even the man who never entered one and never will has a point of view and competitions may always be relied upon as a faithful and hardy, albeit a thorny, perennial.

This year the Competition Committee of the Institute is studying the exceptions to the Competition Code suggested at the last convention by the delegates from the Boston Chapter, which was as follows:

> The Institute recognizes the right of the Owner to purchase unlimited professional service on a basis of adequate remuneration and control. No competition, therefore, shall be held to exist where two or more architects prepare sketches at the same time and in the same manner for the same project, provided the following conditions are complied with:
>
> The Owner shall employ a professional advisor. He shall be an architect of the highest standing, and his selection shall be the Owner's first step. The professional advisor shall see that each architect employed be informed as to all the others, and the remuneration for the preliminary service so rendered be uniform for all and agreed upon by the Owner, and that all the architects so employed are satisfactory and adequate.
>
> The professional advisor shall see that all drawings requested of the architects be on the same basis and presented in the same manner, and he shall act in an advisory capacity only, the Owner not being obliged to accept the recommendation of the advisor in making the final selection.

THE NEW YORK CHAPTER began its new luncheon meetings—an experiment in itself of much more than passing interest (there must have been seventy-five men present), with a discussion of the above clause. The discussion was opened by Mr. Corbett, who explained that while the competition *per se* did not interest him as much as formerly, (as he is not old, he must be prosperous!) it was so closely related to the vital problem of the young men and their relation to the Institute that it could not be ignored. In order to find out what younger men really felt he reported that he had recently dined with a group of twelve, all foreign trained, all in active practice, all men who normally should be in the Institute. Why not? And so he asked the twelve why not. The first replied that the Institute was dead from the neck up. The second confessed that he had attended one chapter meeting of fifteen men who had nothing to say. He was bored to death, but prepared to try again, until he overheard the President remark that it was the best meeting in years. A third replied that in the joy and ecstasy of having landed his first commission he was later dismayed on finding that a member of the Institute had offered to handle the job at two per cnet less. (Mr. Untermeyer please note.) A fourth, to whom he explained as a reason for joining, that the Institute did a great and noble work, bluntly inquired of Mr. Corbett whether he belonged to the Salvation Army, which also did a great and noble work. But Mr. Corbett was quite evidently the master of the occasion for he concluded his address by reporting that he had brought with him to the meeting a baker's dozen of applicants for membership. Incidentally he expressed his faith in the young men—the Institute of to-morrow—believing that they meant to be fair and straight but that they must have a chance to show what they could do, independently of social connections. Generally, many of them were convinced that the Institute's competition regulations, to which membership would bind them, were handicaps which they must carry in the struggle to establish a practice. Yet, as they were all beneficiaries of the Institute so they belonged inside and not outside.

Mr. Magonigle thought the trouble was that the Chapter, and indeed the Institute, had lost the way and had lost their sense of proportion; that they had come to deal with architecture purely as a profession and not at all as an art; that after the Code of Ethics, the Code of Competition, and The Schedule of Charges had been compiled and machinery established for putting them into effect, the professional side of the practice was covered except for an occasional inquiry and a comparison of these regulations with existing conditions to see whether they needed adjustment or modification, but that for architecture as an art the field of discussion was boundless and there are no horizons. He cited the flourishing meetings of the Architectural League devoted to art as proof of his contention that men would congregate where the artistic problems of the profession were discussed.

Perhaps, however, it ought to be pointed out that the "occasional inquiry" is not a thing that can be so lightly dismissed. It is no doubt true that most architects would prefer to practice an art rather than a profession, but amid the vicissitudes of the present business arrangement, it is somewhat difficult of accomplishment. Professional problems are very annoying. No one likes them very much. But in admitting the necessity of establishing certain rules and of occasionally comparing them with existing conditions, the ground is sown and planted for the persistent blooming of these annoying flora. Someone has to make the comparison. The profession is unwilling to leave it to any individual or group. Therefore, a vehicle has to be provided and discussion made possible. The functions of the Institute are determined by its members, and not by any abstract losing of the way, seems a fair conclusion.

Mr. Arthur Rice presented the viewpoint of the Boston Chapter in an admirable manner. He was not concerned with dogma but frankly exposed what he believed to be, from the standpoint of the business man at least, an intolerable situation. That is to say, an owner could not today employ several architects to study his problem simultaneously, even though he compensated them adequately, without in effect setting up a competition in conflict with the Institute's regulations. And the business man didn't like it because he is used to buying in the market as he pleases. The restriction makes him take an unfortunate view of the profession, said Mr. Rice, who pointed out that morally there seemed to be no reason why a man should not buy service from three architects at the same time or why three architects should not sell service to the same man at the same time. The Institute however, penalizes any of its members who take part in this kind of a competition.

Mr. Rice felt that the oft-made comparison with other professions did not apply. It is true, he said, that one does not deal with lawyers or doctors in this manner but he felt that a building operation was quite a different thing. (One wonders.) Thus there seemed to be a definite existing evil and his plea was really first for its recognition and then for a willingness to seek the cure. Under the modification suggested an owner might sit down with two, three, or more architects and a professional adviser and enjoy the advantage of an intimate discussion of his problem while the professional adviser would supervise the details, as recited in the resolution. Then the competitors would go back to work, cease consulting with the owner, and finally turn in their solutions. This arrangement would prevent the owner from unconsciously giving the ideas of one architect to another, as is easily possible when a half dozen men are continually showing sketches and consulting with the owner; and it certainly must be admitted that an architect's ideas are the only things he has to sell.

The difficulty exists, said Mr. Rice, and it ought to be cleared up, in doing which the Boston Chapter does not wish to tear down the Competition Code. And the trouble does not come from the owners, added Mr. Rice, but from the architects, who are too careless to safeguard their own standing. He begged for a full and frank discussion that the Institute Committee might have something tangible to lay before the next convention.

Supporting Mr. Rice's contention that a definite difficulty existed, Mr. Ewing pointed out that if it was professionally irreproachable when a client chose to employ any number of architects one after another, on the same problem, why could they not be worked abreast instead of tandem?

Mr. Swartwout remarked that the proposed addition to the Code did away with three things hitherto held as the main safeguards to a competition—anonymity, mandatory award to the winner, and the decision left in the hands of a jury, of which one member at least was an architect. Mr. W. S. Post recalled the old-time competition where in his belief absence of anonymity worked no hardships. It was political conditions, he thought, which had led to the insistence on anonymity, which also had been demanded by a great number of men returning from the Beaux Arts school in Paris. They wished to insure a consideration of their drawings upon their merits in order the more quickly and successfully to compete against the prestige of the established practitioner. Mr. Magonigle feared that any system of modifying competition practice might have the effect of making the exception prove the rule. Keep to the uniform code, said he, and do not try to fill one with special privileges.

Mr. Butler supported Mr. Swartwout in believing

that anonymity was the real key to a fair competition. He expressed his contempt of the men who declined to enter an unregulated competition with the excuse that the Institute forbade it, and reminded the meeting that the present Code was created to put an end to an intolerable condition, as every architect who had experienced the old system knew.

Mr. Litchfield suggested the creation of a Board of Appeals in each Chapter to which should be given the power of simplifying precedure when necessary. Mr. Magonigle offered the comment that the competition program is not sufficiently advertised and that more information about it, given to architects would help to clarify the situation. Mr. Swartwout deplored the omission of the fixed percentage charge from the present competition program and believed that in general it would be unfortunate to make any change. Mr. Murchison suggested that competition were clearly divisible as between public and private work and that two entirely different codes were required.

On a sense of the meeting vote, eighteen supported the general principles of the suggested modification, and nineteen were opposed. The hour was late and many men had returned to their offices. A special committee was appointed to consider the question and report at the next meeting, giving special attention to the conflict between "tandem and abreast."

A LISTENER might have asked several questions. What did the young men think at the end of the discussion? Really, consideration of them seemed to have been lost to sight. The talk revolved more or less around the point of view of the established practitioner. Why were there no young men to speak for themselves?

Also, one could hardly escape the impression that the man behind the scenes was really that sacred figure now known as the business man. He is the one who spurns anonymity, and resents being told "how to run his business." Very likely. But is there much of anything to prove that this sacred figure is entitled to continue running the world? What is the source of his sacredness? Might not that be a point worth examining into? Would not architecture be better without him than with him? Perhaps nothing could be done about it after his imperial toga had been found to be all baubles and cheese-cloth, but if nothing could be done it would be well to know it and save further worry.

IT IS INTERESTING to turn from these things to the newspaper point of view, and to look through the spectacles of a lawyer, who, as Mr. Ackerman points out, seems more bent upon finding a human victim than upon discovering what is really the matter. On the morning after the meeting of the New York Chapter, the *World* headlined the Institute as a trust, and took a column and more in which to point out its iniquitous methods, as follows (we quote from the *World's* account of the investigation of the building industry):

One trust, it was charged, is composed of the most prominent architects in the country, operating through the American Institute of Architects, which has its headquarters in Washington.

The complaint against the architects is not so much that they are extortionate in their fees as that by means of a "code of professional practice," or "code of ethics," they prevent young men entering the profession from making a livelihood. It is asserted that the code forces all architects to charge identical fees. The result of this is that a builder goes to experienced men in the larger firms, rather than to the younger men, as the cost is the same.

The charge against the American Institute of Architects created something of a sensation, as for half a century the organization has borne the highest reputation. There is not an architect of standing in the entire country who does not belong to it, and who is not proud of the fact. Membership is considered a mark of integrity and distinction, and those entering the field consider joining a necessity.

Samuel Untermeyer, counsel to the committee, undertook to show how the Institute works to the detriment of building. He placed on the stand Burt L. Fenner, a member of the firm of McKim, Mead & White, and President of the New York Chapter of the Institute. This chapter, Mr. Fenner said, comprises about 250 architects, and includes the most prominent members of the profession in the city.

It developed immediately that the Institute issues a document which it calls the "Professional Practice of Architects," and which deals with the fees to be charged by all members.

"What is the per cent charged for reconstruction in the City of New York?" asked Mr. Untermeyer.

"Generally speaking it is 6 per cent," replied the witness.

"And in country work?"

"That varies all the way from 5 to 15 per cent., but these rates are not mandatory."

"We'll see about that," observed the counsel. "Let me read you something from this Professional Practice of Architects, or code of ethics. It says, 'The architect's professional services consist of necessary conferences, preparation of preliminary studies, &c., for which, except as herein mentioned, the minimum charge, based on the total cost of work completed, is 6 per cent.' That is pretty definite, isn't it?"

"Yes," agreed Mr. Fenner. "It is what the architect believes he should receive for his services."

"And this is supplied to the members of the forty chapters throughout the country?"

"Yes."

"It also says here that it is proper to make a charge higher than 6 per cent?"

"Yes. It is necessary in order to keep out of the poorhouse."

"I don't think we will discuss the poorhouse. Now, it says that an architect is entitled to compensation for articl pesurchased under his direction, even though not

designed by him. Is that another of the rules of the code of ethics?"

"No, I have the canons of the ethics here in a separate document."

Mr. Untermeyer read other rules and showed that the last revision had been made in 1908 when the cost of construction was much less than at present. In fact, the witness himself agreed that the increase had been all of 200 per cent.

"But the fees of architects remain the same, do they not?" asked the counsel. "That is, you have not decreased your per cent in fees?"

"That is correct," was the response.

"But you get more money, as you are paid according to the cost of the work?"

"The amount of the fee has increased in proportion."

The witness said he thought this fair, as architects' expenses have gone up with other things and building takes longer than formerly. He thought the 6 per cent. rate fair also, and he insisted that many firms cut under the percentage established as proper.

"But what chance has a young man got in your profession as against the great established firms like your own?" Mr. Untermeyer asked.

"The young man, in many cases," responded Mr. Fenner, "is paying no attention whatever to the rate which the Institute feels is a fair rate."

"Don't you know as a matter of fact that architects of the city do not consider it professional for men to do work below this rate?"

"I know the opposite is true."

"I have discussed it with a great many men and I know that it is given as the reason for not reducing the rate. They say it is an unprofessional thing and it brings upon them the contempt and disfavor of their more important brethren. You yourself have said that the 6 per cent. rule is generally observed."

"I have said that this is the rate most architects charge."

Mr. Untermeyer tried to get the witness to say he would aid in abrogating the rule, but he would not. He insisted it was best for the profession and that young men got along well enough under it.

UNQUESTIONABLY the *World* is rendering a great service in aiding to expose the corruption of the building industry in its town, but it gets excited and so does Mr. Untermeyer. There are men who may hide behind the Schedule of Charges in order to defend an unreasonable fee, but no member of the Institute believes the Schedule to be mandatory.

The New York *Globe* put the matter very well in an editorial, as follows:

Mr. Untermeyer's recent thrust at the American Institute of Architects had its distinctly humorous aspect. A 6 per cent fee, if mentioned as customary in an official bulletin of the Institute, represents in Mr. Untermeyer's opinion a kind of price agreement calculated to make for exorbitant costs in housing. Mr. Fenner president of the New York Chapter, denied that the rate was mandatory or always observed, but he had no need to make a defense. Mr. Untermeyer attacking the architects for housing abuses was like Mr. Gompers accusing W. Z. Foster of Bourbonism. The Lookwood counsel has taken an important part in the fight for better housing, but the New York architects were in it before him. They were back of the programme adopted by the governor's housing committee. Through their JOURNAL they have developed the idea that housing should be built for use instead of for speculation. Individual architects influential with the official body have advocated community planning and cooperative housing. Although they could not get evidence against Thirty-third Street, they gave their private opinion of it freely. No group has done so much, in fact, to create the public sentiment which has made the Lookwood hearing possible. They can afford to smile at Mr. Untermeyer's suggesting that in charging $600 for the planning and constructional supervision of a $10,000 building they are taking an unfair profit.

The Blot on the Escutcheon—II

BY FREDERICK L. ACKERMAN

The Investigation*

THUS FAR the investigation has engaged itself with the more or less obvious; it has not as yet penetrated very far into the jungle of collusive action and cross purpose which, it cannot be denied, is a part of the present system of production. Certain facts have been brought out which illuminate that splendid spirit of cooperative ownership which exists under this system, between building employers and employees; between various employee groups; and also between those supplying building materials and everybody who uses or needs buildings. Something likewise has been revealed concerning Government of the people, by the people, etc., when administered by politicians under the beneficent guidance of hucksters. The matter of credit and the fraternity of lenders has not been looked into as yet.

More than a month of testimony may not be reduced to a few words, but it is possible to block in the broad masses of what has been revealed. There need be no great doubt that there are stone rings, plumbing rings, rings in about all of the thirty odd building trades. There are clearing houses with modern up-to-date systems of card indexing, keeping a watchful eye upon the matter of competitive bidding to insure that it is not competitive. And there is that very vexing and complex institution—the Building Trades Council—or Brindell. Too much altogether to set out in detail—but something may be gained from a few fragments of testimony.

*The story of the investigation into building conditions in New York City was begun in THE JOURNAL for December.

The Master Builders

The nature of the relationship as between Brindell, President of the Building Trades Council, was disclosed in the testimony of November 12th. Some considerable light was shed upon the function of the modern "Master Builders" and the modern "Business Agent" and how they go to their work.

Mr. Robertson, of Todd, Irons & Robertson, builders of the Cunard Building and the Cunard Piers is testifying. Following the story of his first satisfactory meeting with Brindell, which resulted in ending a strike on the Cunard Building in two and a half hours we are taken behind the scenes:

Q. What did he (Brindell) say to you then?

A. We just talked about general conditions, that's all, and I mentioned the fact that we had this—I realized that Brindell was quite a power in the labor world and that I wanted to get his friendship, and I mentioned the fact that we had this big dock job coming along and invited him up to look at the plans. I knew he was President of Dock Builders Union, or high official in the Dock Builders Union, who would be very much interested in that job, and I invited him up to the office to see the plans and take lunch with me the following week.

Q. Did he say anything to you at that time other than you have told us?

A. We discussed the general conditions of the job, how much money was lost on account of the strike condition on the job, and how it would be a wonderful thing if a strike insurance could be got, so there would not be any strike on the job.

Q. Who spoke of "strike insurance?"

A. I think that was a term he used.

Q. Tell us in what connection he used the term "strike insurance," because that is new.

A. Well, insurance against any labor trouble on the job.

Q. He asked you if you would not want strike insurance?

A. Yes, if we could get strike insurance it would be a good thing to have.

Q. When he asked you if you would not want strike insurance, what did you say?

A. I said it would be a mighty nice thing to have. . . .

I said, that it would be a very nice thing to get matters straightened out so that we could get his help and advice and his cooperation in settling these labor questions. I asked what sort of arrangement I could make and he quoted the sum of $50,000.

Q. Said he wanted $50,000?

A. Yes, sir.

Q. For doing what—strike insurance?

A. Well, that is the term, I suppose, sir.

Q. That is what he called it?

A. Yes, sir.

Of course there was a great deal of talk about terms; but the matter was finally settled by leaving the first "insurance" payment on the seat of Brindell's automobile.

The second payment also was made after a visit to the Hotel Commodore, where an appointment had been made by telephone. Mr. Robertson was, he said, getting quite a lot of information out of Brindell.

Q. About what?

A. In regard to prices of labor.

Q. In regard to labor?

A. Yes, sir.

Q. What kind of information?

A. I wanted to know what was going to happen and whether there was going to be a raise in wages and whether they were planning to make any further demands. . . . .

Q. What took place then?

A. We had lunch together, and practically the same thing happened again, and I made another payment to him.

Q. What was practically the same thing?

A. We had lunch together and after lunch we went in an automobile around the block to my office, and just before I got out to go to the office I left some money on the seat of the automobile, amounting to $6,149.

Q. Why did you make it such an odd amount?

A. I didn't want to have these even amounts—it was all handled through our bookkeeping accounts by our bookkeeper, and I didn't want the even amounts to go through. . . . .

Q. And you are going to stay shy?

A. I hope so. I feel this way about it, Mr. Untermeyer. I made a certain agreement with Mr. Brindell to pay him certain money. Mr. Brindell has been of a great deal of assistance to me in doing the work.

Q. You mean in preventing strikes?

A. No, giving us information as to how to run the work.

Q. Giving you information as to when it was going to be raised in price?

A. Yes, sir.

Equal Opportunity and Free Bargaining

The critic who speaks disparagingly of the ancient and time-worn principles of equal opportunity and free bargaining—who says that these principles (habits of thought) are to be rated as make-believe under modern conditions of large scale finance, machine industry and the world market—is held suspect, particularly if he makes plain just what he means.

In point of popular apprehension free competition stands as the cyclopean foundation which alone will support industrial production, sustain culture and insure progress. It is a good old (theoretical) business principle which has latterly been prescribed by captains of industry and finance and by Chambers of Commerce as a sort of a tonic for labor. This prescription ordinarily reads: The open shop for yours."

But it seems that the use of this prescription is limited—as to its application; it is prescribed for workmen; but those who prescribe it evidently have little regard for its value—at least they do not take what they prescribe, as this bit of testimony shows:

Q. That International Association covers, doesn't it, every man engaged in the business of quarrying limestone, of contracting for limestone, cutting limestone, throughout the length and breadth of this land?

A. I think so.

Q. Each set of men engaged in the limestone business, having their yards and factories where they cut the stone and contracting for its erection, they are in local associations, are they not?

A. Yes.

Q. And all those local associations are in this National Association, that also included the quarrymen, the owners of the quarries?

A. Yes.

Q. So that the whole trade in limestone is a group, isn't it?

A. It is.

Q. One vise and grip.

A. (No answer.)

Q. Now the local associations pay into the national association on the basis of their entire output, don't they?

A. Yes.

Q. And you pay into the local association on the basis of your entire output?

A. Yes.

Q. And then you have another inside group called the Hettrick group, inside your local association, in which you pay again?

A. Yes.

Q. And it all comes out of the people who want to build property, doesn't it?

A. Yes.

Q. Inside the Hettrick group of fifteen members there is your little group of nine on the Courthouse, isn't there?

A. There are nine men who wanted to assist me.

Q. Now, are there any more subdivisions for which the public is asked to pay?

A. No.

Reading another part of the by-laws Mr. Untermeyer asked whether it meant that if a man bid on a job and all the bids were rejected by the architect, the contractor could not bid again.

"I think it works that way," replied Hanlein.

Q. You know it reads that way, don't you?

A. Yes.

Q. And the local associations have the same regulations, haven't they?

A. Yes, sir.

Q. And that is what is called the Code of Practice?

A. Yes, sir.

Q. And that means, doesn't it, that if an owner of a building asks two men to estimate on it, and he does not like their estimates, and he throws them out, you cannot get a man in your business to bid again?

A. That is the way it is.

Q. He has got to take one of those two, no matter what he thinks about them?

A. Yes, sir.

Q. Or not put up his building?

A. Yes.

Mr. White, of the George A. Fuller Company, said that a builder could not buy sand and gravel from separate dealers. Sand, gravel and broken stone have to be bought from the same dealer, he said.

The witness then took up estimates obtained on the Chelsea Exchange Bank, which was being altered. Fourteen estimates were obtained from dealers in brick. All but one dealer estimated at $22.70 a thousand. This was on Sept. 21, 1920. The last dealer put in an estimate of $22.

Fourteen estimates were obtained from cement dealers. All were uniform. The price was $5.10 a barrel at the site. The cement concerns from whom the estimates were obtained were scattered all over the eastern part of the country.

It was here that White said that if he wanted to buy cement in Newark or Philadelphia for a building in New York he could not do so at any price. He could only go to a dealer, and that one not outside the district.

Q. So that net work of combination among the cement people encircles the whole country, does it, and all the localities?

A. Yes, sir; the national organization of them controls the price of cement in the whole country.

Q. Is that the cement combination which the Federal Government has been for a year or more gently tapping with its finger-tips in the form of a civil suit in the Federal Court?

A. I think is is, sir.

Q. Have you heard of its having gotten anywhere up to date?

A. No, sir.

Q. Yave you heard of the suit ever having been tried?

A. I have not, sir.

Q. Have you any idea whether the scheme will be at all different by the time they get to trial from the one when they started the suit?

A. I have not, sir.

Q. You know that it isn't difficult to switch these combination plans, don't you?

A. I would infer that it would not be impossible.

Q. So that by the time you get to trial in a civil case the manufacturer bobs up with another plan than the one that is in the suit?

A. Yes, sir.

Price Competition

Any disparaging remark regarding the value of that system of production and distribution known as price competition is likely to be set down as an attack upon the very foundation of society. For price competition is viewed as the springs of action. Above all it should rule in the labor market. But as in the case of material supply, in the matter of bidding, it would seem that regard for this highly rated procedure is confined to homiletical discourse rather than action. Witness the procedure in the New York Court House:

Hanlein denied that certain percentages were assigned to the various contractors in the group of eight, but said that "we spoke of what they would do." He was finally forced to admit that there was a discussion as to the percentage of

the job that each man wanted and that when the various demands were added up they made 150 per cent, or half as much again as the job called for. He said his own estimate was to take 40 per cent of the work and give the others the remainder.

The witness admitted to Mr. Untermeyer that when it was found that the estimates were above 100 per cent they were not scaled down, but that the estimate he submitted was on the basis of 150 per cent of the work which his associates demanded. Hanlein insisted that the other men merely promised to do whatever work he called on them to do, and if he did not call on them for any work they were not to "get a nickel."

Although a contractor agreeing to take a certain part of the work might stand for a heavy loss, all agreed to go in without knowing the price at which Hanlein was to bid for the job, the witness asserted. Later he said that "there was not going to be any loss," according to the expectations of the contractors. He was unable, he said, to tell what the profit on the Court House contract was to have been, for he never knew what it would cost him. Mr. Untermeyer called this an extraordinary arrangement and Hanlein said it was.

Q. Had you ever done anything for these eight concerns for which they were to make such an arrangement as you have outlined?

A. I didn't.

Q. They were under no obligation to you?

A. No.

Q. They were in business for their health or for money, which?

A. They were in business for money.

Q. And this you thought would bring them money, if you chose to give them any part of the contract, and if you didn't, if it was a loss, they would lose money; did you ever hear of such an arrangement before in all your life?

A. No, sir.

Q. Do you ever expect to hear of one like it again?

A. (No answer.)

The Business Agent

Brindell's relation to labor has not been made clear by direct evidence; laborers have not been called upon to testify. But something may be gleaned from the testimony as it bears upon this point. Brindell is a sort of lineal descendent of "Sam" Parks of New York and "Skinney" Madden of Chicago. "Walking delegate" has become "business agent." Evidently "delegate" failed to express the increasing power resident in those who were able to manipulate labor to their own advantage. "Business Agent" may be far fetched as a descriptive term; but it has this merit: it conveys an idea of that impersonal outlook which characterizes those who deal in commodities in the interest of price and of profit to themselves only. Besides, in point of magnitude, the deals, negotiations, and methods, were of such a character as to call for the adoption of a new terminology. And for this purpose "business" is no doubt a better word to use.

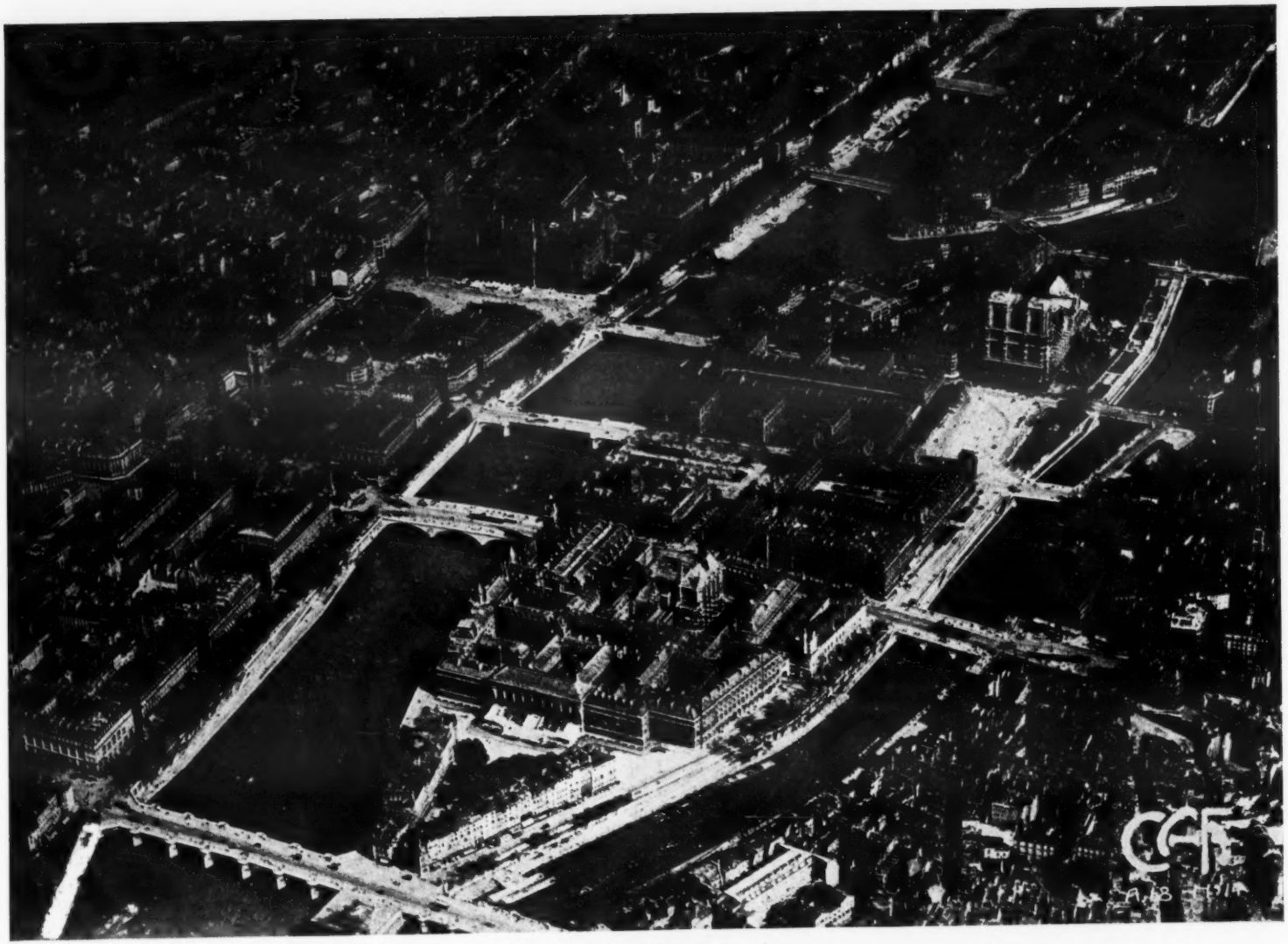
Of course the situation is complicated by virtue of the fact that in this case the commodity was articulate; it lacked something of that businesslike impersonal outlook of its own business agent. But labor is viewed as a commodity and upon this concept turns the tale of the business agent—Brindell. How Brindell acquired his power over labor is a long story; but it is hardly to be denied that the trading attitude of the old-line officials in the conservative unions counted for much; it was out of this attitude that he built his machine.*

What is significant, as throwing light upon the attitude of all of those—architects, builders, material men, and labor group—who were fairly well informed as to what was going on, is the fact that the only open protest and revolt came from a few small groups of so-called radical unions. The only thanks which these unions received was expressed in employers' advertisements running to brand those in revolt as "ultra-radical" and "un-American." This was no doubt due to the fact that these same unions had proposed a building guild for the production of houses without profit. That they had endeavored to break Brindell's alliance with the contractors was not sufficient to count in their favor. This is as much as need be stated at this time—pending further developments.

But the reporter remains puzzled, particularly regarding the news reports and editorial comments. He does not understand so much excitement about "restraint of trade;" and the general attitude toward Brindell is baffling. He reads the financial journals, the market dealings; he can find no evidence anywhere to indicate that production for a profit can be other than restraint of trade. Under a system of price competition production of everything *must be controlled in the interest of price.*

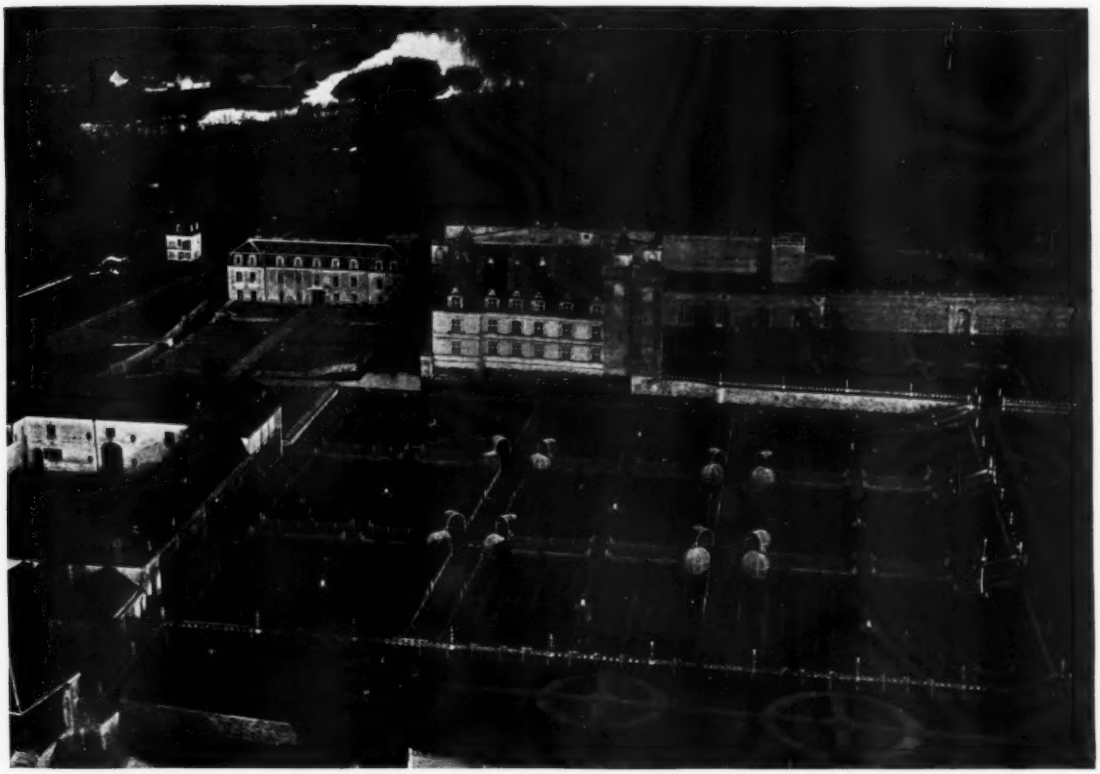
He read columns of argument which run to rationalize that labor is a commodity to be bid for in the open market; and that conditions will not be "normal" until there is a "labor surplus." But if labor is a commodity, why all this fuss about manipulating it in the interest of private profit? The reporter wants to know how the "business agent's" action, in demanding a bonus for the delivery of labor, differs, for example, from demanding a bonus in the case of a loan, a mortgage, or in forstalling the calling of a loan? Or, how is such action related to the issuance of credit at a fancy price to those who would hold cotton or sugar or what not in storage until the community needs it so badly as to pay the price? Possibly all this will be cleared up when Mr. Untermeyer penetrates further into the jungle—and possibly it may not.

*For a detailed statement of how Brindell came to his power, and the conflict between the labor groups—see "The Building Scandal," by George Soule, *The Nation*, Nov. 17, 1920.



From L'Architecture

PARIS: From an aerial photograph



PARIS: From an aerial photograph

By Thomas E. Hibben

CHATEAU DE VILLANDRY: From an aerial photograph

methods resulting in a considerable saving of time. One of two methods may be pursued: Either a rapid survey by a set of horizontal pictures, or an accurate survey with the contour lines by means of three sets of photographs.

All those who have had to study civic improvement schemes know how difficult it is to find sufficient data in the city plan divisions of most of the cities. These plans usually show proposed improvements and not the actual conditions. They are made of small sections, which do not fit one another when an attempt is made to cover a large area. They give little or no information of the detailed conditions of each block or portion of the city. Finally, the actual aspect of the ground cannot be surmised by a study of these maps.

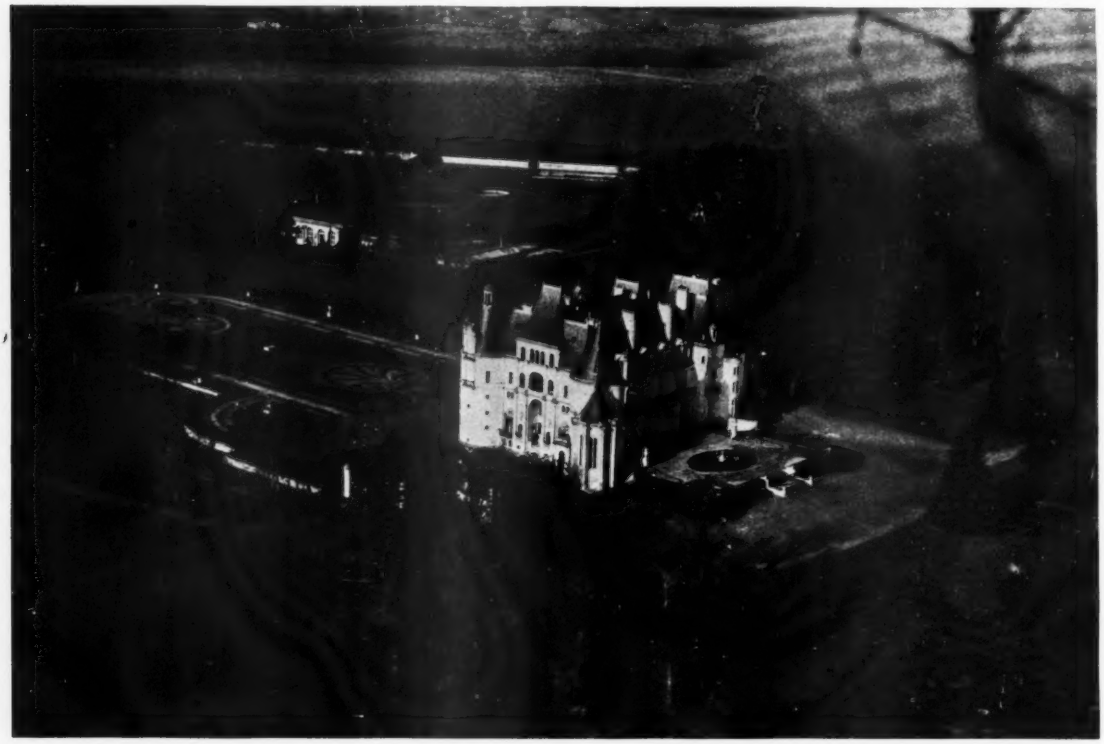
The first process mentioned above (rapid survey) proceeds as follows:

1. The airplane flying at an altitude of 3,000 to 15,000 feet takes horizontal pictures.

2. For each negative, three points are measured on the ground by the usual surveying methods.

3. These three points are drawn at the chosen scale and placed on a wall. The corresponding negative is then placed in a stereopticon and given the proper inclination whereby the three points of the projected negative are superimposed on the three corresponding points on the wall. This corrects the deformation of the negative due to imperfect horizontality of the camera, while it gives an enlargement at the chosen scale of the negative. If a photographic paper is then placed on the wall, a print of the negative at the scale of the map is obtained. By proceeding in the same way, with several negatives, any area can be photographed and drawn from the photographic enlargements. The coefficient of error of the survey obtained by trained operators is only one-hundredth of an inch for maps at the scale of 1/150 in. up to 1/1000 in.! This is far more accurate than the city surveys. The objection made is that differences of level in the area photographed result in a distorted planimetry. However, these distortions can be corrected by a simple method, and for negatives taken at the altitude given above, they are negligible for any difference of level not superior to eighty feet. This type of plan is now largely made by the Compagnie Aérienne for the towns of France, which are compelled by law to prepare a plan of improvements. It has, therefore, passed the experimental stage and its advantages are well known.

From L'Architecture



Press Illustrating Service CHATEAU DE L'ORFRAISIÉRE: From an aerial photograph

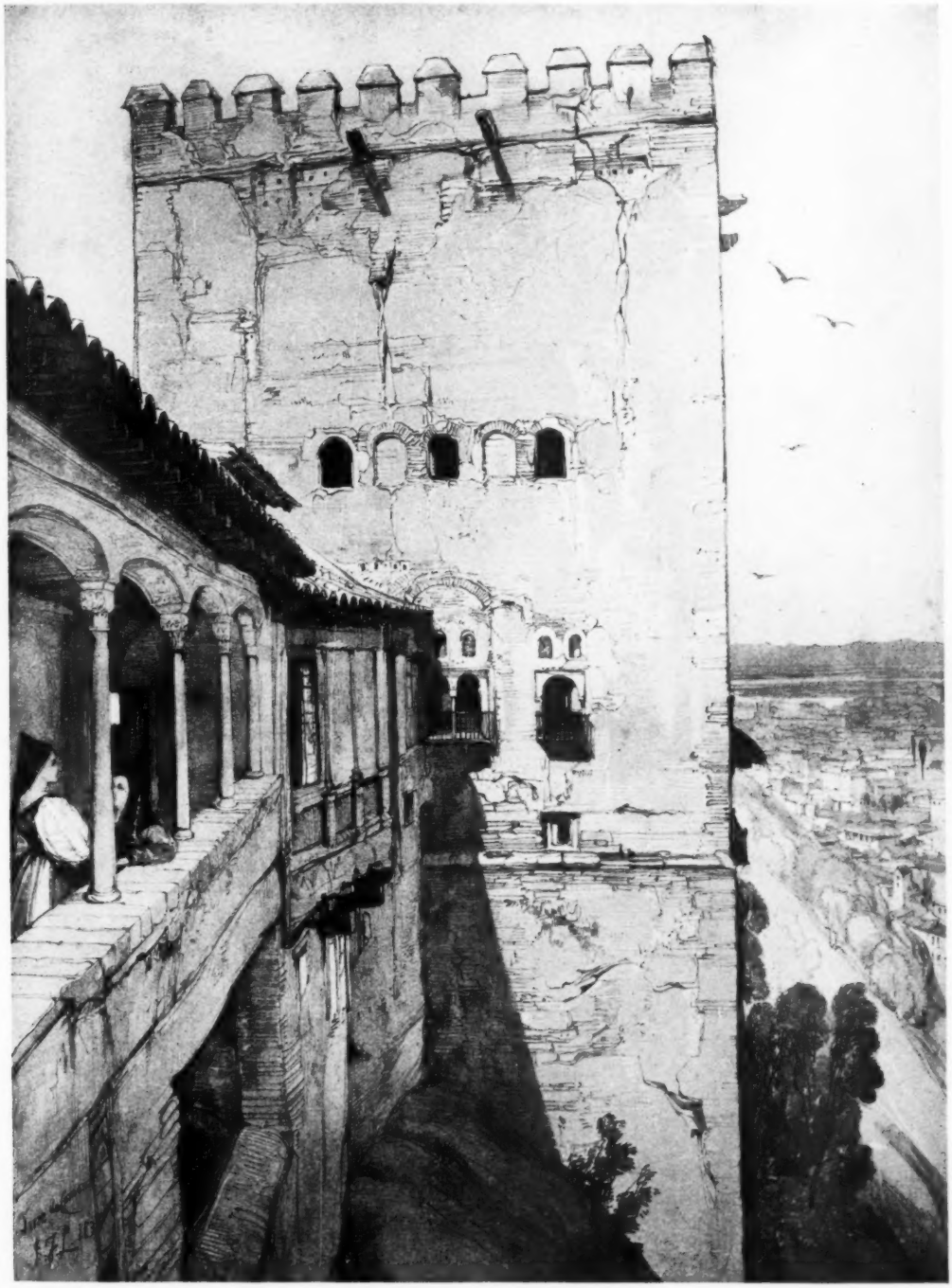
The second and more accurate method of surveying is too technical to be adequately summed up in these notes. We can say, however, that it gives a coefficient of error of only four inches for the actual location of points in plan, and less than two feet for the actual heights above grade. This process requires, like the first one, the surveying by ordinary methods of a few basic points.

Another application of aerial photography is the keeping up to date of city plans, if they are considered sufficiently accurate. In this case, without other surveying, a city map can be kept constantly corrected by comparison with recent photographs. It was the method used during the war by the topographic sections of the army, which accepted as an accurate basis the maps of a region and endeavored only to complete them by the addition of the network of trenches, the new roads, tracks, and other works. These were copied from aerial photographs after a simple correction of horizontality of the negative by means of a perspective gridiron.

If these rapid surveys are of great value to the city planner, he will also find oblique photographs of portions of a city most convenient in the study of improvements. Here is, for instance, (Fig. 5) a view of a portion of Paris, la Cité. It is useless to point out to the readers of THE JOURNAL of the Institute, the value of this kind of documents in planning now thoroughfares, bridges, or in trying to convey to laymen the meaning of the proposed improvements. The type of buildings, the character of the neighborhood, the main highways, are apparent at a glance. I have no doubt that before long new methods of using aerial photographs will be brought forward. The results that I have just outlined are already more than promises.

The Last Straw

"A renaissance Unique—'a home that will never grow old'—a symmetrical combination of Italian, modern and semi-gothic architecture," is the fervid description of a house offered for sale in a Los Angeles newspaper. And to crown the other glories, we learn that it is "well placed on one acre of land, terraced and landscaped along the most artistic lines, with shrubbery, vines, flowers and a Naiadic white marble grotto of Grecian contours for bathing and fountain display, all combining to assert a charming evidence of Beauty, Time and Place." Some assertion—and "the trimmings to plumbing fixtures all of solid silver!"



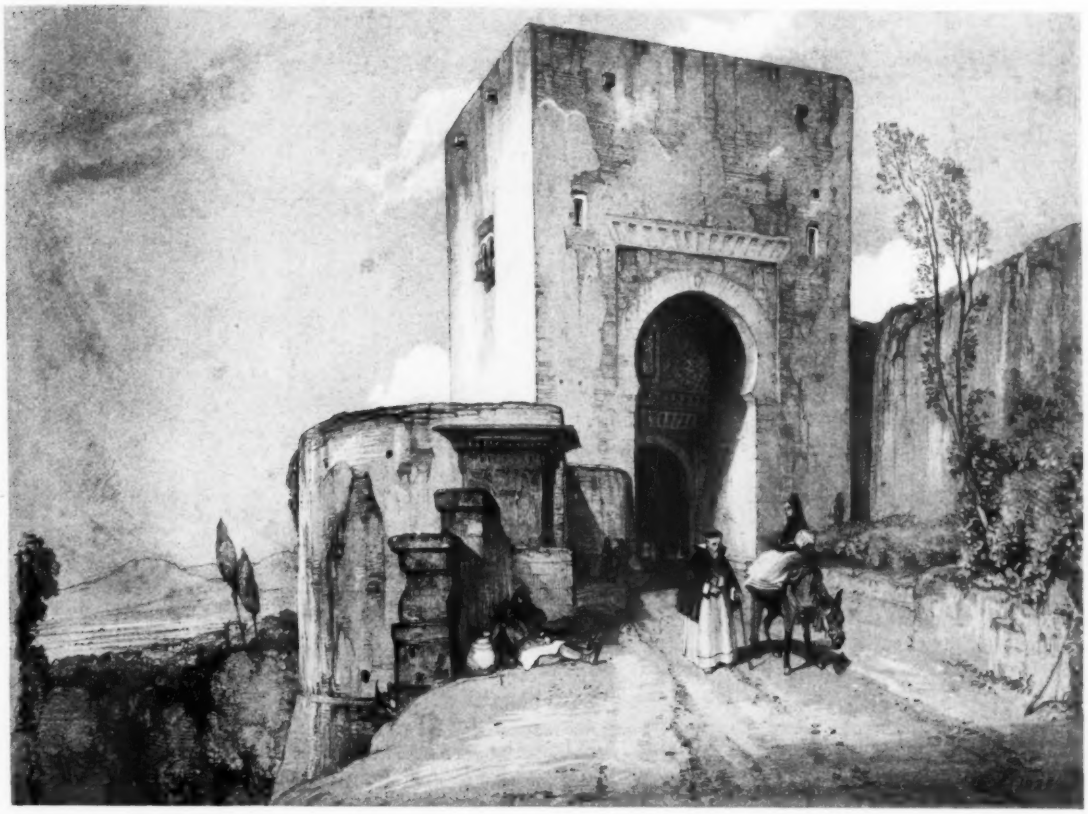
After sketch by J. F. Lewis, 1835

THE ALHAMBRA: The Tower of Comares

Drawn on stone by J. D. Harding

After the lithograph by J. F. Lewis

THE ALHAMBRA: From the Alameda del Darro



After the lithograph by J. F. Lewis, 1835

THE ALHAMBRA: The Gate of Justice

After a photograph by George Herbert Gray.

THE OLD COLLINS HOTEL—CONNECTICUT.

The old Collins Hotel, formerly the half-way house between New Haven and Woodbury, on the Naugatuck Road. The three doorways gave entrance to the general waiting room, the bar room and the ladies' waiting room. The old double-faced sign, which hung over the middle of the road, bears the date of 1811, placing it in that period of early American architecture which followed the publication of the work of the brothers Adam. The style was admirably adapted to the work of the times and its current revival has proven it to be adaptable to many types of present day buildings, as is witnessed by the frequent appearance all over the country of the motive of the portico of "Homewood," near Baltimore. It is regrettable that the life of the period was not longer. It was cut short by the revival of the Greek phase of the "Classic Revival," which, tho' it produced some excellent buildings, was heavier, less flexible, and so less suitable to prevailing requirements.—GEORGE HERBERT GRAY

The Great Building Adventure

The English Building Guilds at Work

By G. D. H. COLE

ONLY A FEW weeks ago I attended the opening ceremony on the site of the first contract of the London Guild of Builders at Walthamstow. Work is now there in full swing and before long it will be in progress on several other sites also in the London area. A contract at Greenwich is almost fixed up and negotiations are also far advanced in connection with a big job for the Hammersmith Borough Council.

Applications, I am told, are pouring in upon the Guild from all over London and the Home Counties and it is perfectly clear that in London at least the Building Guild movement is not likely to be held up for want of work to do. Nor is it only the local authority that is anxious to show some real results to the citizens, and that is eager to avail itself of the new facilities afforded by the Guilds; there is also a steadily increasing stream of applications from Public Utility Societies and even from private individuals.

Beginning Carefully

So far the Building Guilds both in London and in other parts of the country are walking warily and are only taking on work which they know they can handle at once without difficulty. As soon, however, as these first contracts have been got satisfactorily under way there is no reason why expansion should not be very rapid indeed; for the main difficulties in getting the Guild movement started in the first instance have lain in the settlement of preliminaries and in the formulating of contracts and arrangements for the work in a fully satisfactory form. With these initial difficulties overcome, the promoters of the Guild movement believe that there is nothing to hinder a very rapid development of Guild building all over the country. They are not worried by the fact that a large number of contracts have already been entered into by the local authorities with private contractors for there is so much work to be done that the occupation of a small part of the field makes very little difference. Nor are they worried by the fact that the Ministry of Health is at present endorsing Guild contracts only on an experimental basis and has announced its intention of limiting their number until the first results are known, for the Guildsmen know full well that, if they make a success of the work which they are just beginning, the need for houses is so urgent that no theoretical consideration or objections to the Guild method will be allowed to stand in the way of its extension.

The Test of Guild Methods

Of course, it is true to say that the real test of the Guild method comes only when work is actually begun. The Building Guildsmen recognize fully that they have to prove, by actually delivering the goods, that they can do the work of house building better and more expeditiously than anyone else. They have to show that the new motive—the motive of public service under free conditions—to which they are appealing, has real power behind it, and that men will work under self governing Guild conditions with a better heart than they have worked under private capitalism. This can only be proved by actual experience, but the leaders of the Guilds of Builders are very greatly encouraged by the reception which the Guild idea has received throughout almost every section of the Building trades operatives. Not only are the leaders keen, but the rank and file members of the building Trade Unions have entered into the spirit of the Guild and show every sign of meaning to make it a success.

It was impossible not to realize this when one listened to the speeches and talked to the men who were to do the work at Walthamstow the other day. These men are going into the job in a very different spirit from that in which they have ordinarily approached a new piece of work. They are really keen; they recognize that something far more than the success or failure of the particular contract on which they are engaged depends on their efforts, and to an unsympathetic observer they would seem almost ridiculously eager to play their part in the making of a new industrial system.

The Appeal to a New Spirit

The essential meaning of the Building Guilds lies in the appeal which they make for a new basis of industrial organization and a new spirit in industry. For a good many years now there has been a growing amount of talk among workers about the control of industry. The demand that the workers shall control their own industry has steadily gained ground, and has become a part of the official policy of most of the big Unions. During these years those who have been preaching the new ideas to ever more sympathetic audiences have naturally often grown tired of talking and wondered when they would be able, to any extent at all, to put their theories to the test of practice. These men have welcomed the coming of the Building Guilds as an opportunity which they had hardly dared to expect—an opportunity which could hardly have come, or come with so good a prospect of real achievement but for the extraordinary position in which the building industry is placed at the present time, and but for the manifest inadequacy of the existing resources of private capital and the public authorities alike to get built the houses which the people need.

Difficulties

These preachers of the Guild idea realize, indeed, that, even under the favorable conditions which have presented themselves it is not likely to be easy to make a success of the Guild movement in an environment that is essentially hostile to it. However right may be the Guild idea, with its appeal to the motive of service, it is not easy to shift over suddenly from the existing industrial conditions to the making of such an appeal. It is not easy to isolate a particular industry or a part of a particular industry and to make of it an oasis of Guild organization in the midst of a capitalistic system. It is the less easy because even such an industry as building, although it lends itself readily to the Guild idea, is essentially dependent at many points upon other industries to which the Guild idea has not been and cannot immediately be applied. There is for example the whole difficulty of ensuring the regular delivery of all types of materials required in face of a possible boycott or attempt to fob off the Guild with inferior supplies. The building material industry is largely dominated by big firms and associations which might easily, if the Guild stood by itself, exert a powerful check on its successful development. This problem however has been largely dealt with by the entry into partnership with the Guilds of the Co-operative Wholesale Society, which can whenever necessary act as a purchasing agent for the Guild, and secure materials from abroad as well as from at home. In the case of one material at least, cement, the opening of alternative sources of supply through the Co-operative Wholesale Society has already proved its usefulness.

Wages *versus* An Ideal

Then there is the danger, of which much was made when the Guilds were first projected that, with labor as scarce as it is now, private firms, especially where engaged on the less urgent work, the cost of which is not so material a factor, may seek to entice away the best men from the Guilds by the offer of wages considerably in excess of the ordinary district rates and conditions. The promoters of the Guild movement however, do not take this danger very seriously. They believe that their idea and plan of industrial democracy is good enough to hold the best men whatever inducements may be offered to them to go elsewhere or to withdraw their labor from house building in order to reap high rates from luxury work. The Guildsmen are trusting not so much to the material inducements which the Guild itself offers in the form of regular pay irrespective of weather conditions as to the compelling power of the Guild idea itself. Whether they are right or wrong can only be determined by the test of actual experience, but they are very confident and I believe righthly so.

The Guild leaders are relying on the fact that the Guildsman will feel that the Guild is his own concern as he has never been able to feel when he has been working for a private firm. He will be himself a member of the Guild and ultimately will have a share in its administration. On the job on which he is occupied he will have a direct control of the actual working conditions, and the men under whom, as foremen and administrators, he does his work will be his own men drawn from his own Unions, which are parties to the Guild scheme. He will be "on the strength" of the Guild and his relation to it will be not a discontinuous relation terminating with the particular job on which he is engaged, but a continuous relation to be maintained as long as there is service to be done in the building industry. He will feel, not merely that the Guild is his "show" and that of his fellows, but that it is nobody else's "show," and that no one is making a profit out of his labor. He will be producing directly for use and under conditions which make utility the sole test of production.

Sceptics may say that these considerations will have a strong appeal only to a very small number of men; the Guildsmen believe that their appeal will be very wide indeed and that it will be strong enough to work a fundamental change in the whole attitude of the ordinary man towards the work which he has to do. They are admittedly idealists; but after all most of the world's great changes have been wrought by idealists aiming at achievements which have been decried as impossible.

Designer and Craftsman Again Together

One of the most significant features of the Guild movement is the extent to which not only manual workers but men connected with every aspect of the building industry from architects downwards have rallied to the Guilds. Indeed, one of the restrictions at which the Guildsmen are most fretting at the present time is that they cannot find work to do which will afford full scope for the varied abilities at their command. In most cases, where they accept public contracts they have to work to plans already prepared and to accept standards of housing accommodation which they regard as far too low. Wherever I have come in contact with Building Trade Unionists who have accepted the Guild idea, I have found that one of the strongest desires which they possess is the desire to do good work and actually to raise the standard of house planning and house building.

Most of us have been too ready to believe that the keen desire to do good work the craftsman's pride in making things well—had been crushed out of the average worker by the conditions of modern industry. I have found, however, that this desire is still strongly present. Deep down it is true and finding little

expression as a rule in the day's work, it is still there and can be appealed to as soon as the opportunity arises.

In these early contracts the Guilds have perforce to accept for the most part the existing standards and the plans already prepared by the local authorities and approved by the Ministry of Health. They can still build well, but only within limitations which they believe to be unduly restrictive. If the Guilds succeed, I am convinced that one of their results will be a new awakening of craftsmanship in the building industry, and this awakening will be made the more productive of good results by the fact that architects and administrators are organized in the Guilds together with all the various grades of manual skill. The Guilds are the first institutions since the Middle Ages that have really brought designer and craftsman together again. It will, of course, take time, even if their success be as great as can possibly be hoped, for this coming together of the complementary factors in good building to produce its result. But I see in the Guild movement from this point of view a better sign of hope for British building than has been afforded by any craft movement of recent times.

All this that I have written will no doubt seem to most of my readers far too optimistic, and may appear to them to be a statement altogether out of proportion to the real significance of the Guild movement. They may be inclined to say that it is right to give the Guilds a trial side by side with other forms of building by contract or direct labor, but to regard them as merely one way the more, not differing essentially from the others, of mobilizing labor for the work of house construction. The Guildsmen will not object if they are so regarded for all they want is an opportunity to put their theories to the test, and they recognize that the public will only believe in their power to transform the building industry in proportion as they do actually succeed in transforming it. They are content to begin in a small way because they believe that their idea is a big idea and that once started it will go forward to big things by its own momentum.

Architects and Draughtsmen

Various Studies of their Relations

Report of the Joint Sessions of the Preliminary Committees of the Boston Chapter of the American Institute of Architects and of the Boston Architectural Club appointed to confer on matters concerning office relations.

EXTRAORDINARY conditions existing in the building world of to-day and the experience of other cities with draughtsmen's organizations and questions of office relations within the architectural profession indicate that an inquiry into these matters is advisable at this time. Any radical change in professional relations should be made only after the most careful consideration. To this end committees were appointed by the Boston Chapter of the American Institute of Architects and the Boston Architectural Club, which have met in joint session in the Great Hall of the Boston Architectural Club at frequent intervals during the past two months.

This Joint Committee does not believe in looking upon the Architect merely as an employer of labor, and upon the draughtsman as an artisan with a definite labor commodity to sell, preferring to regard both as brother members of the profession and the draughtsman as a potential architect. However, the distinction between the Architect as the head of the organization and the draughtsman who is employed by him at a wage, is generally understood, so the terms "Architect" and "Draughtsman" are used in this report to designate the two parties whose relations are being discussed. Throughout the discussion a spirit of mutual confidence and a desire for an intelligent understanding of the view-point of both parties were displayed. A general improvement in conditions affecting the welfare of the profession was the goal rather than material gain in specific points.

It is everywhere evident that closer organization among the members of the profession is needed. It further appears that the best interests of the profession, the architect, and the draughtsman are served, not by an organization of the trades union type, affiliated with a central body, but rather by a local professional society such as the Boston Architectural Club where there are no rigid distinctions among the members, and all the effort and money expended is entirely devoted to the good of the architectural profession. It is plain that if the Club and the Chapter are to succeed in this very important work of uniting all those engaged in the profession, they must represent more completely the architectural profession of this city. They must present a revived and enlarged membership which shall covenant to support the organizations in this work.

The Committee recommends the establishment and maintenance of a joint standing committee on office relations, whose membership shall include an equal number of architects and draughtsmen, to study in detail the questions raised by this committee to establish a permanent organization, and to receive and pass upon and publish the findings on any dispute or requests for rulings which may be brought before it by the Chapter, the Club, or any individuals who have subscribed to the agreements under which this standing committee is operated. It shall maintain the liaison between the two organizations and assist in coordinating their work, and act as the court of office relations between the two.

By agreement, the Committee excluded from its discussions individual incidents of the past and devoted its

attention to the broad general questions of the present day. A rejuvenated organization such as is proposed would renew a healthy professional spirit among the members and arrest the exodus of trained and experienced men, who, the Committee has been informed, are steadily leaving the profession for other fields where the future seems to hold more promise. The Committee considered in detail the principal questions upon which the proposed organization might be called upon to deliberate and gives below its impressions:

The Wage

The Committee believes that the whole question of office relations and draughtsmen's organizations and the unrest in the profession is in a large measure a matter of adequate compensation to the draughtsmen on the one hand and proper return in service to the architect on the other. No fixed rule or wage schedule could be arranged to meet this question, architects' offices vary too widely in size and character to enable them to conform to rules of practice such as are applied by trades unions, and the personal note, to a large degree, must control professional relations.

The Committee believes that after careful consideration, an adequate living wage should be established for draughtsmen of a certain degree of proficiency and experience below which men of this standard would not be expected to work. Observance of this standard would steady the employment question and prevent excessive undercutting during slack times, a practice which in the past has worked injury to the profession and to the individual draughtsman. Men whose experience and training did not warrant placing them in the qualified group are a problem for further consideration. This class, which included the "office boy" and junior draughtsmen and the student, should be carefully trained as apprentices and adequately compensated. A sane and sympathetic handling of this group would develop genius to the greatest degree and yet curtail the crop of mushroom draughtsmen of little use to the profession.

Profit Sharing

The Committee believes that the architect and the draughtsman can be of the greatest service to each other and to the profession by mutually encouraging permanent office organizations through which the architects may receive the most efficient and sympathetic cooperation from the draughtsmen, and the draughtsman may receive encouragement as to his future in the profession and an adequate and steady compensation for his work. In associations such as these, the two parties share each others responsibilities and should share each others profits and losses. To achieve this, it is only necessary that a sound business system be established to provide for the lean years and at the same time pay the permanent personnel a proper living wage, in ratio to the individual ability or position and based on the normal year, plus a proper share of the profit in a successful year. This system would stabilize salaries, encourage permanency and strong personal interest, and reduce draughting expenses through increased efficiency. The Committee recommends to the careful consideration of the members of the Chapter and of the Club, a system of profit sharing, based on a living wage, as one solution of the wage question.

Hours

The Committee is not aware that there is any great difference of opinion as to good practice in regard to hours of work. The existing practice—thirty-nine hours per week—appears to be satisfactory. It believes that on general principle all offices should close at 5 o'clock in the afternoon, and that work after hours should receive additional compensation. It disapproves voluntary unpaid overtime as a general thing, which reacts unfairly on other men who must necessarily quit their office at the closing hour. The Committee approves, where practicable, a more generous attitude toward permitting time off where the time will be faithfully made up and recommends to the careful consideration of the architects the matter of Saturday closing during the summer, on a basis of equivalent time rendered, a system in successful operation in many large offices.

Inspecting Work

The Committee recommends that all draughtsmen be encouraged to give greater attention to work under construction and that a general practice be adopted of permitting men to make frequent visits during office hours to buildings on which they are working, models, materials,etc.

Draughtsmen's Private Work

The Committee believes that it is detrimental to the interests of the architect, to the future of the draughtsman, and to the profession as a whole, for draughtsmen steadily employed in an office to attempt to carry on private architectural work of any size, outside of office. The usual results are that the work itself suffers through lack of proper attention and with it the professional standing of the draughtsman and the reputation of the profession, and the outside work encroaches on the draughtsman's time in office hours and causes loss of time and interest to the architect. The Committee recommends that proper and generous arrangements to be made by architects to encourage draughtsmen to bring into the office their outside work, to receive proper credit and compensation and cooperation in making the work worthy of the organization.

Employment

The Committee recommends that a spirit of frankness be encouraged among all parties in the many phases of the employment question. It urges a feeling of mutual trust and confidence and deplores a continuance of any of the practices of the past that are opposed to it. It approves the maintenance of an open exchange where architects and draughtsmen alike may post their wants and receive information. It recommends an adequate period of notice by architects and draughtsmen in case of dismissal or change of position.

FREDERIC E. CLAYTON,
Secretary.

The Committees: For the Boston Chapter—Messrs. J. Harleston Parker, *Chairman*, Edwin J. Lewis, J. Lovell Little. For the Boston Architectural Club—Messrs. William Adams, *Chairman*, Niels H. Larsen, Morris Feather, E. L. Morgan, F. E. Clayton, W. Roger Creeley (*ex officio*).

October 22, 1920.

Resolutions Adopted at a General Meeting of the Architects and Draughtsmen of Newark, New Jersey, and Vicinity.

As is disclosed in the resolutions that follow, the question of unionization of draughtsmen and the closed shop idea was the subject of discussion at the meeting referred to. The sense of the meeting was unanimous that neither architects nor draughtsmen desired to affiliate with any union. The resolutions were as follows:

Whereas, The Building Trades Council of Essex County has notified Architects, Engineers, and Contractors that after November 1, 1920 "all plans and drawings to be acceptable in the field must be made by Union Architects and Draughtsmen belonging to the International Federation of Technical Engineers, Architects and Draughtsmen's Unions," and

Whereas, The Draughtsman is the future Architect in training for his profession, he being a part of the Architect's organization, representing him in interpreting the drawings and specifications as a part of each contract, as such the Draughtsman necessarily being in the same position of neutrality in his decisions as the Architect himself. Even the independent Architect not being in a neutral position if his men were allied with the craftsmen's unions and he (the Architect) allied with the employers, the contractors whose work he has to judge and control,

Be It Resolved, That the Architects and Draughtsmen here assembled do hereby agree to ally themselves with the New Jersey Society of Architects (if not allied thereto already) for the purpose of having a truly representative organization in which all questions affecting the interests of Architects and Draughtsmen alike may be fully considered and equitably and fairly adjudicated.

Conclusions of the Illinois Chapter:

The investigations of the Illinois Chapter reveal a tendency toward unionization only among certain classes of draughtsmen. That particular group which might well be called professional or migratory draughtsmen seems to be organized to a gretaer or less extent, but the very nature of their occupation, and the fact that not many of this type are in the employ of the purely professional architect, has not caused the members of the Illinois Chapter any great concern, except in so far as this tendency might spread and involve the well being of that more cultured and ambitious class which constitute the personnel of the average architectural office.

Mature consideration has been given by the Chapter to the possible results of an expansion of this movement, and in each case, the conclusion has been reached that to combat movements of this kind does not necessarily insure success and might involve action not compatible with the dignity of the profession.

It is therefore the sense of the Illinois Chapter that a wholesome cooperative relationship between the architect and his regular employee would result in a condition wherein the employee would gladly forsake the assumed protection of unionism in favor of more cultural and beneficial pursuits, and the Chapter has directed its efforts along these lines. The most representative body of regular architectural draughtsmen in this locality is the Chicago Architectural Club, the personnel of which is of that high type of young men whose efforts should be conscientiously fostered as a part of any architect's duty, and as an initial step in the right direction, the Committee on Professional Relations of the Illinois Chapter has endeavored to show these young men that the keenest interest exists in their work and welfare, and that the architects, as a body, can be depended upon for assistance and aid under any and all circumstances.

In reciprocating this cooperative spirit, the Club has recently amended its By-laws to bring about an Allied Membership to which all members of the Illinois Chapter and of the Illinois Society of Architects are invited to join.

Subsequently a joint committee of the Illinois Chapter, the Chicago Architectural Club, and the Illinois Society of Architects, was created for the purpose of keeping in constant touch with the problems of the younger architects, and before which body all such matters are to receive consideration. The Illinois Society of Architects has also devoted a page of its "Bulletin" to the use of the Club for announcement of their activities and other matters of publicity.

We believe that the spirit and atmosphere of such a wholesome condition, if expanded and extended to other fields of the draughtsmen's activities, will prevent, effectually and permanently, any undesirable combinations among that type of men whose services and cooperation we need and value.

The opinions and the record of action of the Illinois Chapter on this matter will be one of the subjects to be presented at the Convention through the Convention Action Committee.

ALBERT M. SAXE, *Chairman*,
Professional Relations Committee
Illinois Chapter, A. I. A.

Public Architectural Service

In explaining to architects the benefits to be derived by the "Own-Your-Home" expositions, soon to be held in Chicago, New York, and other large centers, Mr. Henry K. Holsman, the professional adviser in the competition to be held for house plans, calls attention to the fact that the expositions are designed to give a very considerable emphasis, in the public mind, to the part played by the architect in the designing of small houses. He points out, as a truism, that the logical way to keep the value of architectural services in the minds of the people is to do some conspicuous public good.

The plans accepted and awarded prizes are to be widely published and fac-simile models are to be made of the first prize winning designs, for exhibition at the expositions, with smaller models of the other prize winners. The effort being made is indeed an extraordinary one and the careful planning of the details ought to insure a result commensurate with the expenditure of time and money.

Housing and Community Planning

JOHN IRWIN BRIGHT, *Associate Editor*

Frequent requests are received by the Chairman of the Institute Committee on Community Planning. They come generally from Chambers of Commerce and similar bodies and they ask for information which will help them to solve their housing shortage, which, as is generally stated they do not seem able to do under "present conditions." To almost all of these requests the following letter is sent as the answer which best meets the situation and its publication in these columns may be of assistance to other groups and individuals seeking light on the subject.

MY DEAR MR.....:

Your letter of ..... has been received. An unsatisfactory business condition is prevalent over the entire world and any special difficulties you may have in ..... are probably of detail and not of principle. You speak of your efforts to find a way out of your trouble under "present conditions" and your letter bears the printed motto, "A Real Industrial Center." Both of these are significant expressions for the first causes one to ask what are the "present conditions" that limit your field of inquiry, and the second draws attention to the unfortunate fact that your "Real Industrial Center" is made only more real by its typical dearth of proper dwellings.

Now if any progress is to be made in ..... there must be first a frank acknowledgment that industry and housing react on each other in the following manner: Whenever industry realizes that it is suffering from the bad housing of its working force then housing stands a fair chance of constructive attention. But the converse is not true, for when industry is prosperous it is conspicuously indifferent to the home surroundings of its operatives. I hope that you may be able to grant that by and large this is a statement of an historical fact, although it is possible that it is not true of your locality. Then again you are circumscribing your field of investigation to the present with all its impossible handicaps. Why not imagine a new set of circumstances?

I assume that in ..... as elsewhere the lowest price of a decent dwelling is more than the workman can afford to pay. The final amount is the addition of a multiplicity of items starting with the land, continuing through with the various charges of speculators, brokers, bankers, material men, contractors, labor and agents. Truly a complicated and formidable array. Your job is to reduce the aggregate sum by one half, or failing in this to induce some outside financial power such as a large manufacturing concern or a governmental agency to subsidise the operation. Always provided you refuse to raise your eyes from "present conditions." Neither singly nor collectively will or can the present collaborators in house building surrender enough profits to make a decisive difference in the final cost, so the subsidy is the only salvation—"under present conditions." It is with the utmost regret that I arrive at this conclusion for I know full well that no economic system can long exist on such a basis.

The truth is that as a profit-making industry the building of low and even of moderate priced houses has failed. Even when we dispute the causes we must acknowledge that the patient's heart has almost ceased to beat. We have apparently arrived at an impasse, and yet there is one thing which has not been tried, an idea which demands no new legislation, no divergence from the usual technique of business life. It demands vision, faith in humanity and that courage of pioneers which any school boy knows is inherent in the breast of every American.

You probably have some corporations in ..... whose stockholders by banding together and acting as a unit can accomplish more than would be possible by individual effort. They own the company outright but each individual holder does not demand the power to administer his share of the estate without regard to the common interest. Such a policy would result in speedy bankruptcy.

Now why don't you start a new industry in ....., *viz:* a town or at least a part of a town. Conduct it just like any of your other industries with stockholders and bond holders, conserving its assets, paying dividends or distributing surplus in the usual way.

Have you not some land in ..... suitable for housing where the first cost will be moderate, not much above farm value, and where under public or cooperative ownership the blight of land speculation can be definitely eliminated. If the tract is large enough shops and various public utilities can be included and the profits from the rental of franchises and business sites and the increment of land values could be applied to the general betterment of the town and to the lowering of living costs. The aim being to improve civic conditions rather than to make money, dividends must be limited and the surplus devoted to municipal improvements. The cost of building will not be affected primarily by the scheme. That is a problem apart although the broader public vision of the new order will aid in is solution. It is rather an attempt to reduce the cost of living in a city and to improve conditions therein. As in any other business a certain magnitude of scale is requisite to success. It will be difficult to plan too big. The danger will be in the other direction.

There is a slight difference in the scheme as outlined and the typical corporation in the application of profits and surplus. This is because the money earned by a business venture is only the means to an end, *viz:* the enjoyment of a home in pleasant civic surroundings, whilst in this new proposal we are dealing with the ultimate object of our desires. Therefore, there is no incentive for the dissipation of profits among individuals. On the contrary every rule of reason calls for their disbursement in the common interest. To regard the city itself as an enterprise comparable to a business corporation is perhaps unusual but entails no new departure in law or finance.

This is the one experiment which has not been tried in this country. We are at a standstill, and the next step is the self-owning town or a government subsidy.

Very truly yours,

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The Agenda for Architects

With this number of THE JOURNAL there is distributed as a supplement a reprint of the Agenda for Architects. The sub-title explains that it is a Memoranda of Procedure and Progress wherein the multifarious duties devolving upon the architect in connection with a building undertaking and in relation with all parties concerned are arranged sequentially according to the usual methods of procedure.

Every architect is earnestly requested to make a trial use of the Agenda, either by itself or in connection with his own system of checking and recording the various acts and operations entailed. The Agenda as at present arranged is the result of several years work on the part of Mr. Day and the committee that worked with him, but it is realized that improvements may be suggested by those who use the document, and that additions may be required in order to cover things that have been overlooked. Very likely it may not be possible to include, in one document, an Agenda that will exactly fit all the needs of architects whose practice involves methods of procedure based upon many differing local conditions, but it is believed that an Agenda ultimately may be provided which will serve the very important purpose of helping to standardize, in the greatest degree possible, the administrative side of a building operation. In the course of time such a standardization would confer an immense benefit upon the whole building industry.

Architects are besought to make the result of their experience with the Agenda known to the publishers, and to address all inquiries and communications to the Editor of THE JOURNAL.

Correspondence

Symbols and Rubrics

TO THE EDITOR:

One day in quest of information, or perhaps only inspiration, I carefully reviewed my collection of architectural magazines. I confidently expected to find numerous good examples of contemporaneous country houses but after scanning several thousand prints I discovered that less than twelve showed real spontaneity of design or anything that could be called *elan*. The rest of them were useless, even harmful, and were carefully refiled and stored on their valuable shelf room. They are still there and are receiving daily accretions. It may be that on that particular occasion I was hyper-sensitive to impressions and that in a less exacting mood I would have been content with a somewhat lower standard of art; perhaps my view point was for the moment lacking in charity, but however that may be my disappointment was tempered by the comforting thought that in the event of my office equipment being destroyed by fire those particular files could never be replaced. And yet I continue to subscribe to the architectural magazines, and methodically segregate photographs of country houses under the symbol 01.12 and village churches under the rubric 05.327, all according to the immortal Dewey.

There is no doubt of it; I have a most extraordinarily complete loose leaf library of recent architectural effort. Whenever my office is dominated by the concept of "Boys, get the money," and I confess that I view with warm tolerance all incoming checks,—then the hours spent with scissors and stamping machines earn occasional desultory and generally unsatisfactory dividends. But these illustrations are the pabulum demanded of the architectural press by its subscribers, the members of the profession, and no fault can be found with the purveyors.

In the September JOURNAL OF THE A. I. A. are published some of Troy Kinney's etchings of dancers and what in the name of "normalcy" has dancing in common with architecture! Grace, silhouette, form, and joy of life are portrayed upon every plate. That is all. But isn't that everything and isn't the depressing character of my reference library largely due to the lack of these qualities. The commonplace, the obvious are so dangerously tangible! Any office boy knows the physical if not the legal difference between a school house and a private dwelling, and can be entrusted to properly Deweyize them. But the modern practitioner has not time for subtility or grace or charm so we mechanically clip, paste and classify to the *n*th power and utilize our shelves for morgues. Of course we shun the use of the true word; we say "architectural libraries."

In a strictly literal sense it is impossible to regard as architecture the etching of a dancing girl but if it possesses the great quality of design why torture ourselves with definitions? Why insist on intercolumniation and fenestration? We are stressing the incidental, illustrated by the floor system and half timbering, forgetting that the sole lasting test of architecture is beauty of design.

Sincerely yours,

JOHN IRWIN BRIGHT.

News Notes

PROTESTING against the exploitation of the National Parks for water power purposes the Rhode Island Chapter has asked its senators and representatives in Congress to oppose the projects and to vote for the bill introduced by Senator Jones, which exempts the Parks from the Federal Water Power Act.

CHAPTER dues have been raised to $15 for Twin City Members and $10 for others, in the Minnesota Chapter. A committee has been appointed to look into the matter of a Chapter Prize for students at the school of architects in the University of Minnesota.

FLANKING Jackson Square in New Orleans are the Pontalba buildings, landmarks familiar and beloved. The good news comes that these have been purchased by a citizen of New Orleans in order that they may be preserved as a part of that priceless inheritance which New Orleans has seemed all too dilatory in safeguarding. We understand that the same benefactor has bought the Paul Morphy house on Royal Street. All honor and glory to his name, although the pleasure he derives in these good works must be ample recompense.

OFFERING to serve the building industry in its territory in every possible way, the Pittsburgh Chapter held a large meeting late in November, which was addressed by Mr. D. K. Boyd, and adopted the following:

"*Resolved*, That it is the sense of this meeting that the urgent necessity for harmony and hearty cooperation among all factors in the building industry has been fully demonstrated and that each representative of organization here assembled with the Pittsburgh Chapter, in his individual capacity, is in sympathy with the desire of the Pittsburgh Chapter to bring about further measures toward securing some effective means of formulating a definite program and securing results."

BARRE, Vermont, offers prizes for the design of a Soldiers and Sailors monument, $2,500 to be paid to the winner as a part of his commission, the whole of which shall not exceed 10% of the gross cost of the monument, for which $60,000 has been appropriated. Four other prizes of $500 each will be paid the authors of the four drawings which rank next. There are three prizes for sculptors. Full information may be obtained from Mr. W. A. Murray, Chairman of the Committee of Quarry Owners, Barre, Vt. In view of the fact that the Committee desires to obtain a design through a competition that will in every way be acceptable to the Institute, this seems a most interesting step in the right direction.

AT THE November meeting of the Boston Society of Architects, Mr. Frank W. Bayley of the Copley Gallery talked upon the works of John Singleton Copley. He spoke of Copley as a great portrait painter, his work giving evidence of a love of color, good taste and faultless composition, wherein the garments, the hair, the draperies and other accessories were all designed with great care as to their harmony, and all the adjuncts carefully weighed. Copley is remarkable in having produced great American works of Art without having come under the influence of foreign masters. He was born in 1737 and was married in 1769. He lived on Beacon Hill in Boston. In 1774 he went to England and never returned, as his wife and family were loyalists. Mr. Copley was a woman of great charm and social influence.

In 1753 Copley painted his first portrait, a likeness of Parson Wilstead. These early attempts were somewhat crude, but in the three years subsequent to that date he made wonderful progress. The name of Copley carries us back to the fine old men and the celebrated beauties of his time, and the collection of his paintings include such prominent personages as John Hancock, Dorothy Quincy, Samuel Adams, Benjamin Pitman, General James Warren, Mr. and Mrs. James Burr of Fairfield, Conn., and many others of like note. Copley arrayed his women to suit himself, and to produce the best compositions. Several portraits were shown in which the same pose and same clothes were used for different heads. Not only did Copley paint, but he was very successful in the use of pastels as a medium. His pastels are very pure and the colors in excellent taste. One of his most important pastels was discovered by Mr. Bayley in a house in Roxbury.

After Copley's emigration to England one must be very careful in identifying his work, as he assumed the mannerisms of his contemporaries in art. Some of his English portraits are very fine, and he attained a wide reputation in England, even having been recommended to paint the three children of George III. His English work extended over a period of forty years, and included not only portraits but many historical compositions. His life was divided into three periods. The first was passed in Boston. During his second period he lived in London, where his work was accepted by the Royal Adacemy, and where he had an opportunity of realizing the dreams of his youth. The latter period of his life was one of anxiety and disappointment. He died in 1815 at the age of seventy-eight. His work has lived because it was good and because it did not violate the basic principles of art.—*Bulletin of the Boston Society of Architects.*

ACCORDING to the decisions of the War Memorials Council, no memorials shall be placed in permanent American Military Cemeteries unless the designs submitted and the sites proposed have been approved by the War Memorials Council, the Quartermaster General and the Secretary of War; individuals and organizations are advised not to solicit or accept contributions for such memorials prior to such governmental approval. Permanent tablets will be provided for marking the location of American Cemeteries established in Europe during the World War, after the bodies of our dead shall have been evacuated to their former homes or to the concentration cemeteries designated for permanent retention.

Consideration was given to appeals for the retention of various cemeteries in Europe in addition to those which have been already designated for permanent use, but it was felt that such action would furnish precedent for many other appeals and the consequent extension of our future mortuary obligations beyond the reasonable bounds of proper maintenance. The Council therefore adhered to its former decisions, in favor of but four permanent cemeteries on the continent of Europe; at Suresnes on the outskirts of Paris, Romagne, in the Argenne region; Belleau Wood where soldiers and marines made common history, and Bony in the Department of Aisne, which will be known as "Flanders Field," where American and British troops were massed in resistless advance; together with one permanent cemetery to be established near London for the repose of our men who fell in Great Britain while en route to the front.

The Council expressed a conviction that the time has arrived for the adoption of a comprehensive scheme for the completion, forestration, and beautification, of the undeveloped sections of Arlington National Cemetery, and that Congress should be asked to give to this project the consideration it deserves and to devote to the improvement of National Cemeteries in the United States as full measure of sympathy and provision as is being given to similar projects in Europe.

There shall be no variation in the governmental headstones recently approved for graves of all world-war dead, save in the individual inscriptions now authorized by statute and regulations or necessary to indicate service in the army, navy, or marine corps; except that there may be placed within the rosette at the head of each stone an emblem of religious faith, to differentiate Christian and Jewish dead, such as a cross or the "Star of David."

Structural Service Department

SULLIVAN W. JONES, *Associate Editor*
LEROY E. KERN, *Assistant*

In connection with professional societies, organized bodies, and the following Committees of the Institute, working toward improvements in building materials and methods, and higher ideals in the sheltering of humanity:

BASIC BUILDING CODE, CONTRACTS, FIRE-PREVENTION, STRUCTURAL SERVICE

Committee Activities

Standardizing Elevators. (33a)—About a year ago the Elevator Manufacturers Association invited the Institute to cooperate in establishing standards of platform sizes, capacities and speeds for passenger and freight elevators. Early in 1920 the Committe on Standards of the Manufacturers Association and a Sub-Committee of the Committee on Structural Service met in New York to survey the scope of the proposed work and decide upon method of procedure. The conclusion was quickly reached that for passenger elevators, platform sizes and capacities bore a fixed relation to each other, and that these two related factors in the problem of elevator design, together with the factor of speed, were determined, in a proper lay-out for elevator equipment, by so-called service requirements. That is, the building population and the percentage of that population that must be moved within 15 or 20 minute periods when the traffic peak is reached, as for example just before nine in the morning, at noon, and after five in the afternoon, are the basic traffic requirements. It is interesting to note in this connection that the percentage of a building population that must be moved during the periods of traffic peak varies in different cities, but in each city the variations between buildings of the same use classification is remarkably slight.

Thus, with the building population known or approximated and the number of people to be moved from the first floor during traffic peaks determined, the elevator problem resolves itself into factors of car size (number of people per car), trip time, and the interval at which cars must leave the first floor. The latter determines the number of people that can be loaded, and hence the car's size.

Trip times are affected by the operator's skill, but principally by safety interlocks on interlocking doors and other devices designed to safeguard the public. Hence, standardization relates itself to safety requirements.

It was known that the Committee on Protection of Industrial Workers of the A. S. M. E. was at work on a Safety Code for passenger and freight elevators, and the conference therefore believed that a means should be found of effecting close cooperation between the groups working on standardization and on Safety Code. The two committees decided that the American Engineering Standards Committee offered the most promising approach to securing the cooperation needed, and the Chairman of the Committee on Structural Service was authorized to request the A. E. S. C. on behalf of the Elevator Manufacturers and the Institute to promote the formulation of the proposed standards under its procedure. The request was made, and on September 21, 1920, in response to an invitation from the Standardization Committee, representatives of sixteen interested national bodies and government departments and bureaus met in New York. The invitation addressed to these national bodies read in part as follows:

"It has been suggested that the conference should consider:

1. The need and practicability of standardizing capacities, platform sizes, and methods of test, of both passenger and material-handling elevators.
2. The effect of such standards, if established, on any proposed or future elevator safety code.
3. The relation of both such standards and such code to fundamental engineering requirements, as determined by traffic characteristics, material-handling, conditions, and factors of safety in operation."

The conference voted unanimously to adopt the suggested program. An Executive Committee was appointed, and also a Committee to appear before the A. S. M. E. Committee working on the elevator safety code which Committee was scheduled to meet the next day. The A. S. M. E. Committee was not inclined to consolidate its work with that of standardizing, principally because the work on the code was approaching the wind-up and it was thought unwise to delay it pending the formulation of even tentative standards. The A. S. M. E. Committee, however, appointed an informal conference sub-committee to discuss the tentative safety code with the Committee on Structural Service. There were two conferences on the code, in the course of which the architects suggested several changes in arrangement, provisions and phraseology, all of which were accepted by the engineers and by them recommended for adoption by the Committee on Protection of Industrial Workers. The recommendations were considered by the large Committee at its meeting on December 15th and in the main adopted and written into the code. By invitation, the Institute will hereafter be represented on the A. S. M. E. Committee.

The Executive Committee, appointed by the Standards Conference, met on November 17th, and recommended to the A. E. S. C. that the A. S. N. E., the A. I. E. E., and the A. I. A. be invited to become sponsors for the proposed standards, that the sponsors organize a working committee (known under the A. E. S. C. procedure as a Sectional Committee) on which beside the sponsors the following bodies will be represented: American Institute of Consulting Engineers, American Society of Civil Engineers, American Society of Safety Engineers, Building Official Conference, Bureau of Standards, Bureau of Yards and Docks, Navy Dept., Electric Power Club, National Association of Building Owners and Managers, Elevator Mfgrs. Assoc. of N. Y., Elevator Mfgrs. Assoc. of U. S., Nat. Assoc. of Mfgrs., Supervising Architect's Office of the Treasury Dept.

The economic importance of standards for elevators can not be over stressed. With standard platform sizes, and therefore hoistway sizes as well, established, the supporting frames for cars will become a staple product. When speeds and capacities are standardized hoisting engines may also pass into the staple class and be stocked. With these standards elevator manufacturers may operate their plants continuously; architects and engineers will not have to wait as now for equipments to be manufactured to meet a wide and unnecessary variety of requirements. When an architect designs his building all he need do is to determine with the owner or building operator upon the traffic requirements, select the standards which most nearly meet the conditions and with his given hoistway sizes lay out his corridors, steel, and so forth. Designing, so far as it should be dictated by traffic (people or material) requirements becomes an almost exact science, and with the passage of time we shall see fewer and fewer inadequate and inefficient elevator equipments. In the future, the designer may not with complacency borrow a few inches from the elevator hoistway in order to enlarge a slop sink closet, for such action will mean special elevator work and a cost that will penalize him.

The Experience Pool

Under this caption, the Committee on Structural Service will record from time to time, statements of experience received in connection with investigations conducted for the purpose of answering inquiries addressed to the Committee.

Sound Deadening Floors. (19g)—The Structural Service Committee received the following request for data on the sound deadening of floors:

"Sometime ago in the building of a house where we desired to achieve a result above criticism, we failed to accomplish what we hoped in the matter of securing immunity from noise passing through a floor above a large living room. The ceiling is of an open timber construction; that is to say, 4" x 6" cross beams spaced 12" on centers, are carried on three 12" iron girders and rest upon 2" x 4" cleats bolted to the girders. The girders are boxed with 7/8" chestnut plank, and long panels are framed in between the cross beams. The under flooring 7/8" matched spruce is nailed to the upper surfaces of the cross beams. Over this is laid two layers of one-ply Cabot's floor quilt. Over this quilt, 2" x 2" sleepers. The air space is filled, or was called to be filled, with 2" of mineral wool. To the 2" x 2" sleepers laid 12" on centers, was nailed the upper floor of 7/8" x 2¼" plain oak. The result, in spite of these precautions, is a noisy floor."

"Several reasons are given by way of explanation. First in importance, in the eyes of some critics, is that we failed to provide a sufficient air space; second that we neglected to float the floor—*i. e.*, run the quilt up the walls of the room behind the base; third, that we erred in nailing the 2" x 2" sleepers to the under floor; fourth, that we neither used the proper insulating material nor in a quantity sufficient to obtain a favorable result. The rectification of this problem is of some importance to us, our desire being to remedy the defect beyond all peradventure of failure. We would appreciate any recommendation based upon a knowledge which others have gained through the success of dealing with a floor of similar construction."

The information in the committee file indicated that the sound transmission of this floor was probably due to the following causes:

First—By nailing the finished floor to the sleepers, the sleepers (through the quilt)to the sub-floor, the sub-floor to the beams, and the beams casing to the beams, direct contact for the transmission of sound was established between the finished floor and the finished ceiling.

Second—That this direct connection between the finished floor and finished ceiling will largely counteract the sound-deadening efficiency of any quilt or felt or any filling between the sleepers.

Third—That eel grass and similar quilts are not as efficient sound insulators as hair felts.

Fourth—That eel grass and similar quilts are compacted under even comparatively light loads and their efficiency thereby reduced. That the nailing of the sleepers to the sub-floor compacted the quilt between the sleeper and the finished floor.

Fifth—That the dead air space between the sleepers is a sound conductor, and that so long as direct contact is maintained, increasing the air space will not materially effect the result.

Sixth—That a mineral wool filling between the sleepers will in a comparatively short time settle and compact with corresponding loss of efficiency.

A description of the floor construction together with this tentative diagnosis of the cause of the sound conductivity was sent for criticism and suggestion to a number of the leading authorities on this subject. The following replies were received:

Bureau of Standards, Washington D. C. "Your diagnosis under the first four headings is probably entirely correct. There is no evidence to contradict your statements. Under the fifth heading we agree with the conclusion that so long as direct contact is obtained by nailing sleepers to sub-floor and finished floor to sleepers, increasing the air space will not materially affect the results. The dead air space serves to reduce transmission effectively only so long as the connection between the bounding walls is kept down to a minimum or is effected only with relatively unelastic materials."

"We are not in position to discuss the sixth point."

Prof. F. R. Watson, University of Illinois.—"I think you are quite correct in stating that the direct connection due to nailing the various members of the floor together so as to make a continuity of structure will furnish a path for the transmission of sound, and that this will largely counteract the effect of sound absorbers between the floors. The theory of the subject, which is supported by experiments, states that sound is stopped; that is, reflected, when it meets a new medium differing in elasticity or density. Such a discontinuity is furnished by the boundary between a solid and air, such as masonry-air or to a less extent by wood-air, or wood-hairfelt since hairfelt is largely composed of air cells. It is quite necessary, however, for the reflection of sound that the air space be not bridged over to a second solid. This is the usual fault in buildings because it is usually necessary for practical considerations, to bridge over the air gap. Thus in the flooring you mention, the air gap is bridged by the nails; double plaster walls are connected at least at the ceiling and floors, etc., so that the efficiency of the sound insulation is largely annulled.

"My investigations show that paper lined materials are more efficient sound insulators than material without lining. For instance, hairfelt ¼" thick, lined on both sides by paper, transmitted less sound than unlined hairfelt ½" thick. The paper reflects considerable sound and is also set in vibration thus transmitting pressure vibrations to the enclosed eel-grass, felt, etc.,

which tends to absorb the energy. The efficiency of such quilts is augmented by increasing the thickness. Compacting then reduces their efficiency.

"A dead air space appears theoretically to be a good insulator. To be effective the air space should not be bridged over; also, the boundaries of the air space should have considerable rigidity. If the boundaries consist of thin members, they are likely to vibrate and set up a drum action. The bounding member nearest the sound vibrates and creates pressure waves in the dead air space that sets the second bounding member in motion and thus passes the sound on the side furthest from the source. It is necessary that the bounding members be rigid and massive for good insulation.

"Mineral wool is likely to settle, as you state, and thus reduce the efficiency. In testing this material in a section of vertical wall, I found it necessary to adopt special devices to prevent its settling during the course of the test. Ground cork or dry cinders appear better suited to this purpose.

"In addition to the foregoing points, attention should be paid to ventilating flues and pipes. An otherwise well insulated floor may be largely reduced in efficiency because of ventilation and pipe openings that allow easy passage of sound. Another factor of importance is the large area of the floor cited. A small load or impulse at the center of a large span will have a relatively large effect. For instance, a person dancing in the middle of the floor above the living room could set up a considerable vibration of the ceiling of the living room below and thus create sound. A piano resting on the floor would create a similar effect when the keys were struck."

Mr. Theodore Lyman, Director, Jefferson Physical Laboratory, Harvard University.—"In this matter you can not do better than to consult either Mr. Clifford M. Swan, of the Johns-Manville Company, or Dr. Paul Sabine, Riverbank Laboratories, Geneva, Ill., or both. These gentelmen are well fitted to give you sound advice upon this subject."

Dr. Paul E. Sabine, Riverbank Laboratories, Geneva, Ill.—"The failure of the floor construction described in the way of sound insulation seems to me, as well as to yourself, to be largely a matter of construction. The rigid connection of the finished floor through the sleepers and felt to the ceiling construction below practically annuls any possible advantage than may arise from the use of the deadening felt. The transmission of sound through solid construction is much greater than through the air space, so that the effect of the air space is practically nil.

"As to the relative merits of the various sound insulating materials, I may say that I have not yet tested a sufficiently large number of different materials to speak authoritatively on this question.

"The mineral wool filling between the sleepers, possesses practically no merits in the form of construction used. The only way that I can suggest to secure reliable information on this subject, is to await the results of further experiment.

Prof. C. L. Norton, Mass. Inst. of Technology.—"I have no further information on the subject in question and the only person whom I know who has given the matter much thought is Mr. Clifford Swan who was associated with Professor Sabine at Harvard and later with the Johns-Manville Company, in New York."

Mr. C. M. Swan, Acoustical Engineer, H. W. Johns-Manville Co.—"I regret to state that I have no report showing the relative sound-transmission values of the various deadening felts and quilts on the market nor am I aware that any reliable figures on this subject are available.

"I am sending you copies of literature on various Johns-Manville deadening felts in accordance with your request. The various brands of Keystone Hair Insulator have varying degrees of efficiency for sound-deadening purposes. I recommend as the most effective for this work the Double Neptune and Arctic Brands."

A letter of inquiry was written to six manufacturers of felts and quilts claimed to be efficient for the purpose. Information was requested relative to the existence of any reports of tests of the various felts and quilts being used for sound deadening of floors.

It would appear from the replies received that none of these manufacturers are prepared to furnish disinterested technical data upon which to base claims for superiority of their products. The following quotations from two of the replies are illuminating examples of the kind of data furnished by manufacturers:

1. "The most important point in selecting a sound deadener is to secure one that is sanitary. . . . Some years ago we warned against the use of cattle hair . . . also pointed out the danger of contracting anthrax from its use. . . . You probably noted in the press lately, the increase in the number of anthrax cases . . . an amendment had been made by the Board of Health requiring the sterilization of all hair used in toilet articles . . . is in our opinion the most sanitary deadening felt on the market. For this reason it is used very extensively."

2. "We are frank to acknowledge that we don't really know of any very elaborate publication covering the merits of deadening felts. In fact we are under the impression that the architects and engineers have become so familiar with this subject, that it really has not appealed to any one to write up the merits of deadening felts."

Abstracts

It is the purpose of the Structural Service Committee and THE JOURNAL jointly to give in this division each month, brief abstracts of all publications by the Government Departments and Bureaus, University and other research laboratories, States and Associations, which contain fresh information in regard to materials or methods employed in construction and thus afford architects and others a convenient means of keeping themselves conversant with rapidly expanding knowledge in the technique of construction.

Plasticity of Mortars and Plasters. (3m)—(*Technologic paper of the Bureau of Standards No. 169 "Measurement of Plasticity of Mortars and Plasters."*)

Since the more plastic mortars and plasters not only require less labor but also tend to a better quality of work, the plasticity of the material is of considerable economic value. It is a property for which the consumer pays, and a means of accurately measuring degrees of plasticity is therefore of practical value. The above deals in the main with descriptions of various types of apparatus that have been used for this purpose and describes in detail the improved apparatus recently constructed by the Bureau. It also contains much data of value relative to plasticity, of which the following is an abstract:

Definition and Description of Plasticity.—It is generally accepted that a plastic material is composed of inert solid particles suspended in a liquid medium. The term "plastic material" when used in connection with such materials as mortar and plaster is defined as indicating that the material possesses the characteristic of working freely and easily under the trowel and having marked ability to hold its water. In distinction to this there are sticky materials which hold their water, but pull and are "rubbery" under the trowel, and sandy materials which are "harsh" and dry

out quickly. This gradation of plasticity—sticky, plastic, sandy—is the one generally accepted.

Plasticity is thus dependant upon two factors, the time during which the material can be worked and the work required to spread it during that time. Of these two factors the former is of far greater importance than the latter. It is in fact the predominating factor. For, example it requires less work to spread sand than lime, but sand dries out so quickly that it can not be spread to the same thinness nor worked for the same length of time and is, therefore, less plastic.

If one plaster can be worked on the wall for 30 minutes and one for only 15 minutes the former would be generally accepted as the more plastic regardless of the relative quantities of work required to spread the two. If, on the other hand, two plasters can be worked for exactly the same length of time, then that plaster is the more plastic which requires the less work to spread it.

On this theory, plasters have been divided into classes according to the length of time which they can be worked and those in each class have been ranked according to the work required to spread them.

Relative Plasticities of Miscellaneous Materials.

Class.	Relative force required to spread	Material.
30-minute...	14	"Cal"* soaked overnight.
	51	Finishing hydrate, soaked overnight.
25-minute...	20	"Cal" not soaked.
20-minute...	37	Dehydrated clay.
15-minute...	24	Finishing hydrate, not soaked.
	34	Non-plastic hydrate, soaked overnight.
10-minute...	12	Celite.
	13	Nonplastic hydrate not soaked.
	15	1:4 lime mortar.
	16	Cement No. 1.
	16	Cement No. 2.
5-minute...	3	Cement No. 3.
	5	Very fine sand.

*"Cal" is a proprietary material which is intended to be added to concrete to accelerate its early hardening.

It will be noted from the above table that before soaking, the finishing hydrate is not much better than the non-plastic. Soaking raises the finishing hydrate three classes, the non-plastic hydrate only one class. Materials in the 20-minute class or better can be used as finishing plasters, those below the 20-minute class can not.

Range of Plasticity.—Plastic materials vary in length of plastic range. As a general rule the more plastic the material the greater will be this range. If increasing amounts of water are added to hydrated lime, the change in consistency will occur in the following order: dry powder, damp powder, sticky mass (practically solid when moulded), plastic material, liquid. Suppose a given hydrate changes from a solid to a plastic material when mixed in the proportion, 80 per cent lime, 20 per cent water and when the proportion is 50 per cent lime, 50 per cent water, the material charges from a plastic material to a liquid. Then the plastic range of this lime is $80-50=30$ per cent.

Effect of Consistency on Plasticity.—If a lime paste is not plastic no amount of water which may be added to it can render it so. The converse of this is also true; a plastic lime remains plastic regardless of the quantity of water which may be added. These statements are true only when the material does not approach too closely to either a solid or liquid condition. Consistency however does have some little influence on plasticity. Experience shows that a wet paste will have somewhat, though very little, better spreading qualities, than a dryer one made of the same material.

Plasters are usually spread on absorbent surfaces. They must be mixed with enough water to make them plastic and they must be able to retain that water against the suction of the surfaces on which they are spread. The length of time during which a plaster can hold enough water to maintain its plasticity will depend somewhat on the quantity of water originally present but chiefly on some inherent property of the plaster which gives it its ability to retain water.

Effect of Proportion of Sand upon Plasticity.—The quantity of sand which is added to a lime paste to make a plaster is governed almost entirely by the plasticity. The mortar mixer adds as much sand as he can without making the mortar so lean that it can not be worked successfully. Since the plasticity of sand is lower than that of lime, the replacement of lime by sand will cause a continuous decrease in plasticity. At a certain point it will be found that the plasticity of the mixture is so poor that it can no longer be used for the purpose intended. This point indicates the sand-carrying capacity of the lime.

The sand-carrying capacity will also be found to vary with the purpose for which the material is used. For finishing coat work the lime must be in the 20-minute class; for scratch coat work on metal lath a 15-minute class lime will possibly be satisfactory; and for brown coat work a 10-minute class lime may be used.

A *dolomitic* (magnesian) hydrate (see S. S. D. December Issue of JOURNAL), in the neat paste, has a greater plasticity than a high-calcium hydrate. The tests also indicate that a mortar made of a dolomitic hydrate is more plastic than one made of a high-calcium hydrate, regardless of the proportion of sand, up to that point where both are so lean that there is little difference between them. The tests also show that the addition of a small amount of sand to a high-calcium hydrate slightly improves its plasticity.

Hydrated and Quick-lime.—While any kind of quicklime, when properly slaked will produce a putty of very great plasticity—different limes have different degrees of plasticity, depending probably upon the quality of the lime and the size of the grains. Hydrated limes are divided very sharply, into two classes, on the basis of their plasticity,—the "finishing" limes and all other hydrates. In the main the "finishing" limes are made from a kind of limestone peculiar to a small district in Northwestern Ohio, but as the art of making hydrate is improved, it is probable that finishing hydrates will be made elsewhere. In fact this has already been achieved in one or two cases. The material

used for the final coat of wall plaster must have plasticity in a very high degree. Neither portland cement nor calcined gypsum have sufficient plasticity to be used for this pupose without the addition of lime.

The Carson Blotter Test.—One of the methods formerly used to some extent to measure plasticity, the Carson botter test, is of particular interest in that no special apparatus is required. A tin cup, a piece of blotting paper and a table knife are the only essentials.

Mix the lime with water in the cup. Use enough water to make a good plastering consistency, although this point is not very important. It is usual to let the paste soak overnight before testing it, in accordance with the custom of soaking hydrate overnight before using it. In the morning try to spread the lime out on the blotter with the knife and note "how it works."

In the hands of an experienced operator this method is perfectly trustworthy. Very small differences in plasticity may be detected. It is impossible, however, to test one lime and compare its behavior with that of another lime which has been previously tested by another operator. comparisons can only be made when both samples are tested at the same time by the same operator.

Plywood Panels. (19e6)—(*Data on the Design of Plywood for Aircraft. Report No. 84 by the National Advisory Committee for Aeronautics.*) This report gives the results of investigations made by the Forest Products Laboratory to determine the mechanical and physical properties of plywood and how these properties vary with the density, number, thickness, arrangement of the plies and direction of the grain of the plies. The following is an abstract of the data of value in connection with the architectural use of plywood:

The selection of veneer species and thickness introduces elements quite distinct from those involved in the design of an ordinary structural member of wood. More variables are involved, for in addition to the properties of the various species there are added unique properties due to the number of plies and thickness and direction of the grain of the various plies.

Wood is a non homogeneous material, with widely different properties in the various directions relative to the grain. The large shrinkage of wood across the grain with changing moisture content may introduce distortions in a board that decrease its uses where a broad, flat surface is desired. The shrinkage from the green to the over-dry condition across the grain for a flat-sawed board is about eight per cent and for quarter-sawed board about four and one-half per cent, while the shrinkage parallel to the grain is practically negligible for most species. In building up plywood a step is made in obtaining equality of properties in two directions parallel and perpendicular to the edge of a board.

Definition of Plywood.—Much confusion has been caused by the indiscriminate use of the terms "Veneer" and "Plywood." The former term should be restricted to the relatively thin sheets of wood cut with special veneer machinery from the surface of a log revolving in a lathe or by slicing or sawing from the face of a log, known, respectively, as rotary, sliced, and sawed veneer. "Plywood," on the other hand, refers to the combination of several plies or sheets of veneer glued together, usually so that the grain of any one ply is at right angles to the grain of the adjacent ply or plies.

Warping of Plywood.—On account of the great difference in shrinkage of wood in the direction parallel to the grain and perpendicular to it, a change in moisture content of plywood will inevitably either introduce or relieve internal stresses. If in a three-ply construction, having the grain of the core at right angles to the grain of the faces, the moisture content is lowered, the core will tend to shrink a great deal more than the faces in the direction of the grain of the faces. This subjects the faces to compression stresses and the core to tensile stresses. If the faces are of exactly the same thickness and of like density the stresses are symmetrically distributed and no cupping should ensue.

If the grain of one face of a 3-ply panel runs in the same direction as the core, the internal stresses are no longer symetrically distributed, since the compressive stress in one face has been removed. This face now shrinks a great deal more than the other face in the direction of the grain of the latter. The result is cupping. A high ratio of core to total panel thickness in a 3-ply panel gives flatter panels than using all plies of the same thickness.

Rule of symmetry to reduce warping.—In order to obtain symmetry an odd number of plies must be used, and the plies should be so arranged that for any ply of a particular thickness there is a parallel ply of the same thickness and of the same density on the opposite side and equally removed from the core. Even so small a difference in thickness as may result from unequal sanding of the two faces is sufficient to introduce unequal forces and cause cupping if the moisture content is changed.

Direction of the Grain of the Plies.—In careless construction the successive plies may not always be glued with the grain either exactly parallel or exactly at right angles to the core. A construction involving angles other than 0 and 90 degrees introduces twisting stresses. Tests have shown that deviation as small as 5 degrees from the standard 90 degree construction may introduce considerable twisting.

Moisture Control.—Since a change in moisture content may introduce cupping and twisting if the panel is not carefully constructed, the moisture content of the veneer should be so controlled as to give as far as practicable plies of the same moisture content before gluing, and finished panels should have about the same moisture content when they leave the conditioning room as they will average in use.

Relation of Density of Veneer to Warping.—Numerous tests have shown that the warping of plywood panels when subjected to varying moisture contents is least for panels made of low density veneer, and that in general warping increases with increasing density.

Shrinkage of Plywood.—The shrinkage of plywood is only about one-tenth as great as that across the grain of an ordinary board. It will vary, however, with the species, the ratio of ply thickness, the number of plies, and the combination of species. It is usually negligible and can be detected only with laboratory instruments of precision.

Effect of Increasing the Number of Plies.—Whether three or more plies should be used depends on commercial con-

siderations and the use to which the panel is to be put. An increase in the number of plies results in a decrease in the tensile and bending strength parallel to the grain of the faces and an increase in the corresponding strength at right angles to the grain of the faces. The greater the number of plies used for a given panel thickness, the more homogeneous in properties is the finished panel. Where great resistance to splitting is desired, as in plywood that is fastened along the edges with screws and bolts and is subject to forces through the fastenings, a large number of plies affords a better fastening.

Glued joints are more likely to fail when thick laminations are glued with the grain crossed than when thin laminations are used. When plywood is subject to moisture changes, stresses in the glued joint due to shrinkage are greater for thick plies than for thin plies. Hence with many thin plies the glued joints will not be as likely to fail as with a smaller number of thick plies.

Uses and Properties of Various Species.—The following low-density species are satisfactory for core stock in plywood: Basswood, fir (grand, noble, and silver,) redwood, Spanish cedar, white pine, spruce (red, white, or Sitka), yellow poplar, western hemlock, sugar pine, and cotton gum.

On the basis of their mechanical properties, veneer species used for face stock of plywood, may be grouped as follows:

Group 1.—Beech, birch (sweet or yellow), hard maple, black walnut.

Group 2.—White elm, red gum, soft maple, mahogany (African or true) sycamore.

Group 3.—Basswood, Spanish cedar, fir (grand, noble, or silver), cotton gum, western hemlock, sugar pine, white pine, yellow poplar, redwood, spruce (red, white or Sitka).

When a flat panel, high bending strength or high column strength with minimum weight are desired and finish is of less importance, species of group 3 should be used as face stock. Some of these species, such as spruce, can not be finished properly without a considerable amount of sanding and all but light sanding is undesirable because it may unbalance the construction.

Where hardness, resistance to abrasion and strength of fastenings are factors of importance the woods in group 1 should be used. Where finish is desired species of group 1 or group 2 should be used. Where plywood must be steamed, or soaked and bent into a form in which it is to remain, species of group 1 or group 2 should be used.

Size and Thickness of Commercial Veneer.—The average length of sawed veneer sheets is about 14 feet, and the maximum 24 feet, the average length of sliced veneer is about 10 feet, and the maximum 18 feet; rotary-cut veneer averages about 6 feet with a maximum of 16 feet. Sawed and sliced veneer sheets are limited in width by the diameter of the log, whereas rotary cut veneer may be any width consistent with easy handling. Sawed veneer is seldom cut less than 1/28 inch thick. Rotary-cut veneer of some species may be cut as thin as 1/100 inch to almost 1/2 inch in thickness. Sliced veneer ranges in thickness from about 1/100 inch to a little over 1/16 inch.

Glues.—The Forest Products Laboratories have published a number of Bulletins giving data on the subject of glues. A digest of these Bulletins will be published in the February JOURNAL.

Swimming Pools. (35 k)—Within the last ten years the municipal swimming pool has become an established institution, and with it have come new sanitary problems. In 1917 the State of California adopted an act known as the Swimming Pool Act and in 1919, rules and regulations were adopted by the State Board of Health, providing for the healthfulness, cleanliness and safety of public siwmming pools. Special Bulletin No. 35, the "Sanitation of Swimming Pools," published by the California State Board of Health is a compilation of all the publications of the Board on this subject. It contains the Swimming Pool Act, the Regulations of the State Board of Health, a discussion of the Sanitation of Swimming Pools and of the Disinfection of Bathing Suits and Towels. The following is an abstract of the recommendations made in the matters of swimming pool design, construction and water supply.

Materials.—Concrete, massive construction or reinforced, is the best material with which to build a pool. Wood or earth in any part of the pool should never be used. The walls, floors and walks should be surfaced with white tile, cement (white or gray) or other impervious material. For ease in cleaning, the finished surfaces should be smooth, but floors and walks should be rough enough to prevent slipping. White cement is preferred to gray cement on account of its color, and where the latter is used it is sometimes painted a white enamel finish in order to give to the pool a more sanitary appearance.

Size and Depth of Pool.—Pools should be made sufficiently large to accommodate the summer holiday crowds. It is this patronage which is most apt to cause the breaking down of the pool sanitation if it is at all inadequate. Small town pools appear to require providing for about 100 persons per thousand population. The average attendance will, of course, run much less than this but the size of the pool, quantity of water supply, number of dressing rooms, toilets and showers should be adequate for the maximum patronage.

In many instances the quantity of water available will limit the size of the pool. If the water supply is limited it is unwise to make the pool too large. For example, if the water supply is limited to 30 gallons per minute or 43,000 gallons in 24 hours, under the best manipulation and without filtration about 100 bathers could be accommodated and a pool 60 feet long by 20 or 25 feet wide would be the largest it would be wise to build. As a rough figure, 400 gallons of "pure" or "purified" water per bather is needed. The Board of Health recommends 800 to 2,000 gallons per person for a continuous addition of new water without the use of disinfecting solutions. If the supply is not more than 200 gallons per bather a recirculating, filtration and disinfecting system must be used.

Pools should be laid out to conform to the sizes and proportions required to make swimming records "official." The intercollegiate swimming rules require that the length of the pool shall be in multiples of 15 feet and the width in multiples of 5 feet. The general proportions of the pool should be long and narrow The length should be from three to four times the width.

The shape of the bottom of the pool and the depth are important features. To comply with the intercollegiate swimming rules, the minimum depth should be not less than 3 feet and the maximum depth at least 8 feet. A minimum depth of 8′ 6″ oposite diving stands and spring boards is required by the regulations of the State Board.

For a children's pool the minimum depth of 3 feet is too great. If, therefore, the patronage includes children, a small shallow wading pool, possibly attached to the shallow end of the main pool, should be provided.

The best shape for the main pool is one which provides a maximum depth at a point just forward of the end of the spring board and a broad area at the shallow end suitable for general swimming and wading. Most bathers remain in the water not over 5 feet in depth and this portion of the pool floor should have a slope of not more than one foot in 15 feet. A maximum of one foot in 20 feet is recommended. As the deep end of the pool usually has a rather steep slope, the change from the flat slope to the steep slope should be made at a depth of not less than 5′ 6″ or 6 feet as a protection against inexperienced swimmers slipping if they chance to walk off the flat slope.

Scum Gutter.—A scum gutter on all four sides of the pool should be provided. The shape of the gutter should be such that access to it by the bathers would be difficult. Drainage outlets should be of such size and spacing that all overflows and splash will be promptly carried away into the sewer and not returned to the pool or the circulating system. Gutters or drains, along the top or side of the wall, open and accessible to the bathers, should not be used.

The gutter should be recessed with not more than one inch projection beyond the face of the wall above. A slight projection will assist in preventing drippage from the wall above re-entering the pool. To avoid any obstruction in the pool the scum gutter should be designed to serve as a hand rail. For this reason it must have a minimum depth of about 3½ inches and for good drainage should pitch 1¼ to 1½ inches in 10 feet toward the drain outlets.

Curbs.—The entire pool should be surrounded by a raised concrete curb, at least 2 inches high on the walk side by 12 inches wide. This curb serves as a space on which bathers may sit and as a check against walk drainage flushing into the pool. The proper height of the curb above the water level is 18 inches. The overflow or scum gutter automatically maintains the height of the water.

Walks.—Walks surrounding the pool may slope toward or away from the curb to a grating covered drain or to drain outlets in the walk. Walks should be at least 4 feet wide in the clear and should have a slope of at least one half inch per foot to the drains. All corners should be rounded.

Walk drains should be carefully designed. Material carried in them represents the worst pollution about the pool. It contains suit drippage and a large amount of sputum and effete matter. Designs which provide for a pitch of the walk toward the pool without a raised curb to intercept it, carry this filth to the point where bathers are most apt to lounge.

Inlets and Outlets.—The best inlet and outlet arrangement is the one which will most quickly permit changing the entire contents of the pool. An arrangement of inlets and outlets giving the maximum uniformity of displacement of "used" by "incoming" water, and the maximum avoidance of short-circuits or "dead" areas should be used. Nothing could be worse than a single outlet and a single inlet. Experiments show that the bulk of the pool is practically "deadwater" when such an arrangement is used.

The use of branch inlets about 10 feet apart at mid-depth, or even staggered in the vertical, along one side, with outlets similarly located on the opposite side is an approved arrangement. The use of fountains and the omission of the scattered outlets, using instead the scum gutter as an outlet, may, if the water supply is abundant, be satisfactory. When filtration and recirculation are employed the inlet and outlet lines both lead toward the filter. It is a wise plan, even when the water supply appears to be abundant and recirculation not necessary, to so lay out the outlet and inlet lines that a filter plant can be installed later if it should be desired. The main drain should be at least 6 or 8 inches in diameter and should connect with a sewer or drainway which is known to be large enough to carry the full stream of drainage water.

Miscellaneous Features.—Dressing rooms, shower rooms, lavatories and toilet rooms should be commodious, well ventilated and well lighted, preferably by natural light. They should be conspicuously located. All wooden surfaces should be painted white. Floors should be of tile, cement or other similar material but not of wood. They should pitch at least ¼ inch per foot toward grating covered drain channels or floor drains, and in all cases away from passageways or the pool, except that when the raised curb is used the gangway around the pool may pitch to a grating covered gutter just back of the curb.

There should be at least one shower head for each 30 dressing rooms. Showers should be supplied with both hot and cold water and should be conveniently located with respect to all the dressing rooms. There should be at least one toilet room for each 30 women's or children's dressing rooms and at least one toilet for each 60 men's dressing rooms. There should be urinals to accommodate at least 5 per cent of the capacity of the men's dressing rooms. Toilet and urinal rooms should be located for ease in finding from every dressing room and from the pool. Sand beaches, earth walks, board walks, lawns and the like, which may contribute contamination or objectionable filth to the pool or premises should not be permitted.

Water Supply.—One of the most important and difficult standards to be set for swimming pools relates to the water supply. The main requirements are that the water shall be continuously clean, clear and bacterially safe. It should be free from noticeable scum, suspended or floating objects or particles. It should be so clear that bathers may be seen on the bottom of all parts of the pool. Clearness, however is not an index to the bacterial condition of the pool. A pool may become prohibitively polluted long before it begins to discolor. The California State Board of Health has adopted as a tentative standard a total bacterial count of 1,000 colonies per cubic centimeter on

agar incubated at 37.50 C., and a B. Coli count of one (1) per cubic centimeter for the pool water in any part of the pool, examined within 48 hours after sampling.

There are two distinct methods of meeting the requirements for a proper supply or sanitary condition of the water *e. g.*, the "fill and draw" or "dilution" method and the recirculating method. These two methods are sometimes combined.

By the "fill and draw" or dilution method the pool is emptied and refilled with new water at intervals of from one day to one week and the addition of a constant stream of new water between cleanings at a rate which will displace the used water at least once in two days. The amount of new water required varies greatly with the concentration in the pool, class of patronage, care in enforcing showers regulations and general sanitary surroundings. The continuous addition of from 800 to 2,000 gallons of new water per bather is recommended but the exact amount can not be established except by trial. Pools which are emptied nightly may be able to maintain proper bacterial safety. If the water is held for longer periods, some form of disinfection should be used in addition.

Intermittent applications of disinfecting solutions direct to the pool, morning or evening or both are sometimes used in connection with the "fill and draw" method, especially if the water supply is limited. A solution of hypochlorite of lime, known as bleaching powder or chloride of lime may be used, or any solution containing the same active ingredient.

In all cases fresh material having a strength measured as available chlorine sufficient to dose the pool with 2 to 5 pounds of available chlorine per million gallons is essential. Ordinary chloride of lime runs about 25 per cent available chlorine. With ordinary chloride of lime, 1.5 pounds of dry powder per 100,000 gallons in the pool is a good average dose. Copper sulphate is sometimes used but it is a weak germicide and if used in sufficient amount gives the pool a milky appearance. Its use is highly recommended for algae or moss control but not for disinfection.

The more modern method of handling the water supply, with a view not only to economy but to maintaining a better bacterial condition in the pool, is the rotating or circulating of the pool contents by pumps through filters of adequate capacity, after which it is disinfected or chlorinated and returned to the pool as "purified" water. It is not uncommon to find that this "purified" water is actually cleaner and safer than the new water used in filling the pool.

The foreign matter such as lint from bathing suits, growths of slime, cuticle, dead algae, and similar coarse material is held in suspension during the day when the pool is patronized but within a short time after bathing is over it settles to the bottom. The filter can be effective in removing this only so long as it is in suspension and reaches the outlets. Therefore a filter should be designed and operated to handle the entire pool capacity in from 6 to 14 hours or one swimming day. Unless the water is rotated daily, algae growths will become established. There is little benefit, however, in recirculation or filtering the water when there is no swimming going on.

In designing filters it is well to figure on a capacity of 2 gallons per square foot of sand surface per minute. It appears that provision for the use of alum or coagulating chemicals is unnecessary with a swimming pool filter, the reason probably being that the slime in the pool water naturally provides the coagulum. Either open or closed filters appear to yield good results. The former is usually the cheaper, at least in first cost. The chlorination of swimming pools is apparently highly efficacious. The dose needed and the circulating period vary with the clearness of the pool water, patronage, etc.

Ordinarily, 0.5 pounds of chlorine per 100,000 gallons of water is sufficient for swimming pool disinfection. The chemical may be added in the form of chlorine gas, in which case a chlorinator apparatus is used, or it may be used in the form of bleaching powder mixed into a solution, and fed into the supply at a rate proportionate to the flow. Bleaching powder is weaker than chlorine gas by about 70 per cent, therefore about three times as much, or 1.5 pounds per 100,000 gallons must be used. Apparatus for the handling of bleaching powder consist of a concerte tank holding 300 gallons and a small concrete orifice tank for regulating the feed of the solution. In either case the chemicals may be applied at any point in the circulating system.

Heating the pool water may be a necessary feature where the new water is very cold. A temperature in the pool of 64 degrees F. is quite cool, while a temperature of 68 degrees F to 75 degrees F. is comfortable to most people. In the case of a recirculating system, the returned water may be passed through a series of coils over an oil or coal furnace. Some heaters are equipped with steam pipes within a water chamber set in the circulating system.

Note.—The California State Board of Health has done considerable inspection work and investigation of Swimming Pools since the data was collected for publication in the above Bulletin. It is stated by Mr. Ralph Hilscher, Director of the Bureau of Sanitary Engineering that while more recent investigations have caused a change in some of their views, relative to construction and design, nevertheless, in the main the information in Bulletin 35 may be safely followed by architects in designing pools.

Landscape Design. (38)—The United States Department of Agriculture has published Farmers Bulletin, No. 1087, "Beautifying the Farmstead," by F. L. Mulford, Landscape Gardener, office of Horticultural and Pomological Investigations. The bulletin points out the importance of improving the surroundings of farm houses, the neglect of which is stated to be due usually to one or more of the following causes:

(1) The opinion that it will require too much time and work for upkeep, (2) a feeling that the improvements will be unsuited to farm conditions, (3) a belief that adequate improvement will be too expensive, (4) indifference, (5) a lack of understanding of what can be accomplished by expending a little effort in this direction. Among the subjects treated are the following: desirability of making plans for improvements in advance, location of the buildings, walks and drives, service features, lawns, terraces and planting.

Note.—The influence of our present system of taxing improvements is, in the opinion of many, the reason why so much farm property is unimproved.

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